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CATARRHAL APPENDICITIS.

By Paul Y. Tupper, M. D.,

Professor of Applied Anatomy and Operative Surgery, Medical Department Washington University, St. Louis.

The term "catarrhal," as applied to the most common form of appendicitis, is misleading. It tells the truth but not the whole truth. However, I do not believe that any one word can be found that will as clearly describe this pathological condition as do the simple terms suppurative, perforative and gangrenous as applied to other diseased conditions of the vermiform appendix. The term "endo-appendicitis," as used by Douglas, has at least the negative advantage of being non-committal pathologically. It aims to confine within certain bounds the extent of this pathological process rather than to mark out definitely the structures involved and define the exact character of the involvement.

Accepting the term catarrhal as ordinarily used, it is not appropriate when applied to the form of appendicitis under discussion. Here, not only the epithelial lining is involved in the pathological process, but markedly the underlying lymphoid structures with which the lymphatics are richly endowed. Orth first demonstrated the existence of lymphatics in the submucosa of the appendix of the rabbit. Later, Morris not only proved their presence in the structure of the human appendix, but clearly demonstrated the promptness of their involvement in lesions of epithelium. The term endo-appendicitis, then, in distinction to the so-called interstitial or parietal variety, seems to be more fitting than the classification catarrhal appendicitis ordinarily used.

The disease is admittedly infective-microbic in character, but many and varied causes operate to excite the development of it. The bacillus coli communis, ordinarily inocuous in the intestine, becomes actively and perniciously aggressive under influences which depreciate the local tone of the appendix, causing an infection which is distributed to a varied extent

through the lymphatics. Welsh, Clado, Fowler, Robb and others have repeatedly demonstrated the occurrence of this bacillus in pure culture in cases of exudative appendicitis. Some believe the infection to be a mixed one and argue the presence of both streptococci and staphylococci. Welsh maintains that the infection is due to the compound influence of the bacterium coli and streptococcus—insisting that the failure to discover the streptococcus does not necessarily prove its absence.

The extent and virulence of the infection necessarily determine the gravity of the lesion. The involvement may be limited to the mucous membrane and the underlying lymphoid tissue, causing infection and tumefaction of the mucosa and an exudation into the lumen of the appendix of epithelium and bacteria-ladened mucus. The presence of this accumulation if for any cause the appendix cannot expel it by its inherent contractility, gives rise to the well-known appendiceal colic so frequent in the early stages of the attack. The stenosis preventing an easy escape of the appendiceal contents may be occasioned by a pathological thickening of the cecal mucosa in the neighborhood of the valve of Gerlach, or possibly by the constriction of the lumen of the tube near its cecal attachment, the result of ulceration in a former inflammatory attack. This constriction must not be confounded with a physiological obliteration of the lumen of the appendix. Woolsey states that in about 25 per cent. of cases the lumen is partially and often completely obliterated, beginning at the distal end. It is a physiological and not a pathological process. Only 4 per cent. of this obliteration is found in the first ten years of life, while it is present in over 50 per cent. of cases at sixty years. I have seen appendices exhibited for occlusions thought to be pathological, but to my mind they suggested simply this now well recognized physiological obliteration. The outcry of the appendix is because it is not able to disgorge its contents, not because of the entrance into its lumen of a foreign body. We know too well now that the foreign body so often found in the appendix, and formerly thought to have made its way from the cecum, is simply a combination of inspissated mucus, feces, epithelium, etc., which has formed in the appendix but which it has been unable to expel. Under favorable circumstances the slight inflammatory action subsides or the appendix becomes tolerant of the foreign body and the immediate attack is at an end. Generally, however, lesions ensue that result in constrictions, irritable foci and from which subsequent attacks originate. With each attack the resistance of the tissues is lowered and consequently recurrences are as a rule more grave in their outlook.

Many and various factors enter into the exciting of an attack of appendicitis, the most common being habitual constipation, trauma, angling of the appendix from cecal traction or pressure, floating kidney, right ovarian inflammation, etc. Being dependent from that portion of the intestine in which inspissation of the feces first takes place, the appendix is, because of this position, liable to fecal lodgement and consequent infection. Byron Robinson's opinion that

the ilio-psoas muscle by causing unrest of the superimposed appendix predisposes to appendiceal inflammation is, I think, open to criticism. The normal appendix from its position, mesenteric attachment and inherent mobility should not be affected by the normal movement of adjacent muscles and viscera. It is not a fixed but essentially a movable organ. Moreover, the movement of the ilio-psoas is peculiarly restricted and kept in bounds by the unyielding iliac fascia. It is not plausible then that it can by its contractions play at "battledore and shuttlecock" with the appendix to the extent of crippling it.

Within the first twenty-four hours of the onset of an attack of acute appendicitis the pain usually becomes localized in the right iliac fossa, the normal site of the appendix. At first, however, the location of the pain is either illy defined, or not infrequently referred specifically to the epigastric region. The probable explanation of this is the primary irritation of the superior mesenteric plexus. In the very young, and occasionally in adults, because of an undescended testicle, the local evidences of an appendicitis are found as high up as the right hypochondriac region and should not be misleading. I think there is as yet no record of a case of appendicitis on the left side, but such is possible in a case of situs inversus.

The diagnosis of an acute appendicitis is ordinarily not difficult—the history of the attack and its symptomatology leaving us but little ground for doubt. What to do for the case, however, or what not to do, is often a matter that taxes our judgment to the utmost. Errors of omission as well as those of commission are apt to be made. To do what our best judgment dictates often calls for an exhibition of genuine moral courage. My opinion is that it is more than exceptional when a case of appendicitis demands operative interference within the first few days of its onset. Selected statistics show that 85 per cent. of all cases, well treated, call for no surgical procedure until after the acute attack is past. The remaining are the few cases where perforation takes place rapidly, and even in these a waiting on nature's limitation is often far safer than the hasty and generally harmful attack of an overzealous operator upon the already surprised and insulted peritoneal cavity.

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SUPPURATIVE APPENDICITIS.

By Jacob Geiger, M. D., St. Joseph, Mo.,

Professor of Surgery and Clinical Surgery Medical Department St. Louis University, and Professor of Principles and Practice of Surgery and Clinical Surgery, Ensworth Medical College.

The vermiform appendix is an anatomic relic; it possesses the same anatomic structure as the intestine. Its mucous membrane is richly supplied by lymphoid tissue. This would account for the greater frequency of the disease in the young, in whom this tissue is most abundant.

Its cæcal orifice is guarded by a fold of mucous membrane, the valve of Gerlach. Under normal conditions the mucous secretion finds its way easily into the intestines, and the valve serves to prevent the entrance of any considerable amount of intestinal matter into the appendix. The normal mucus of the appendix contains the colon bacillus, occasionally staphylococci, streptococci, and perhaps other organisms. If, from any other cause, the mucus is retained, its chemical elements become changed, disturbances of circulation and nutrition follow, and the organism becomes active and pathogenetic.

First, only the toxins from these organisms may pass through the walls of the appendix and set up a simple condition; later the germs themselves may escape through the softened or abraded mucous membrane, spread to other coats, and cause a local or widespread peritonitis.

If staphylococcus is the only or dominant germ and the blood supply fairly good, the process will be slow, and a simple adhesive and localized inflammation result, thus allowing sufficient time for the advancing exudate to organize, gluing beforehand coils of bowels and omentum together, forming a barrier, shutting off the primary pathology from the general peritoneal cavity, producing a unilocular or multilocular abscess, which may contain foul pus, fæcal concretions or a sloughing appendix, or the appendix may form part of the abscess wall.

In nearly every variety, if the appendix is retrocolic or retrocæcal or behind the peritoneum, only a local or circumscribed abscess results.

Again, in other instances, if the streptococcus or colon bacillus is very active, infection virulent and resistance low, the appendix becomes ulcerated or gangrenous, speedy perforation follows, leading to a more diffuse peritonitis, which may prove fatal in from twenty-four to forty-eight hours.

Occasionally a circumscribed abscess may become diffuse, bursting into the general peritoneal cavity. The symptoms in such cases very much resemble those of acute intestinal obstruction: severe colicky pains; early, copious and persistent vomiting; the abdomen becomes tympanitic and distended, the abdominal wall hard and rigid; the patient becomes anxious, depressed, and frequently passes into collapse.

Suppurative appendicitis is indicated by increasing tenderness and swelling in the right ileo-cæcal fossa, the parietes become œdematous and

infiltrated, and over the most prominent part of the swelling the percussion note becomes less and less resonant, and finally flat or dull, except when the abscess is post-fæcal or post-colic—then a tympanitic area is always present.

The temperature sometimes falls, but not to normal; the pulse is usually hard and rigid; the pain and tension may increase or diminish; rigors and sweating, foul breath, dry tongue, slight jaundice, rapid emaciation and other signs of sepsis; leucocytes may rise to 16000, 18000 or 20000.

In a majority of cases, in a week or ten days from the onset all the symptoms become milder, and the patient feels decidedly better.

In a few cases, however, the patient becomes more or less prostrated, does not rally, the inflammation spreads and assumes a more diffuse type, gas accumulates, bowels become paralyzed, and patient dies from sepsis or exhaustion. The abscess may rupture into the general peritoneal cavity, or into a bowel or the bladder.

The ideal treatment of all appendicitis would be to operate in all cases which are going to suppurate, perforate or become gangrenous, and treat the catarrhal form medically.

Unfortunately, we never know with any degree of certainty what course the case will take. The expectant plan of treatment is always dangerous; we never know what will happen. All cases situated so they can have competent surgical treatment, and in which there are no contra-indications, the appendix should be removed within twenty-four hours after the beginning of the attack.

If the case is not seen until several days after the beginning of the attack, and the symptoms do not indicate an advancing peritonitis and sepsis, it is best to wait until recovery before operating.

If suppuration or abscess is diagnosed or reasonably suspected, we should operate at once, taking care not to invade the general peritoneal cavity. It is not good surgery to wait until the abscess fluctuates or points; there is danger of the abscess bursting into the general peritoneal cavity.

In operating, great care should be taken to open where it can be reached most superficially. If the appendix is found in the abscess cavity, remove it; otherwise not. Do not irrigate, but sponge out the cavity with moist gauze, drain with gauze or soft rubber tube, apply a moist dressing, and re-dress according to the necessities of the case.

PERFORATIVE APPENDICITIS.

By Harvey G. Mudd, M. D.,

Professor of Special Fractures and Dislocations, Medical Department Washington University, St. Louis.

Upon being invited by your committee to present a paper on "Perforative Appendicitis," I at once felt myself confronted with the difficulty of preparing a paper on this variety of this most interesting and widely

discussed disease, without trespassing considerably on the territory of the gentlemen invited to write on the other divisions of this subject.

However, others may have been likewise embarrassed and this may make it easier to pardon any such transgression on my part.

It seems hard to estimate at all accurately the proportion of cases of appendicitis in which perforation occurs. However, a rough estimate, based on cases received in two large hospitals and reported by two widely known surgeons, Deaver[1] and Ochsner[2], shows that about 23 per cent. of *all cases* of appendicitis are perforative, and about 35 per cent. of *all acute cases* perforate. This percentage is probably higher than the facts warrant; for it is certain that many patients recover from slight attacks which go unrecognized as appendicitis. Nearly all cases of so-called fulminating appendicitis are perforative; hence the majority of the gravest cases are found in this subdivision. The clinical picture of acute, perforative appendicitis is striking. The patient oftentimes has a feeling of something giving way, then follows the excruciating pain and collapse. There is a subjective sense of extreme illness, it may be of impending death. The body surface becomes cold and clammy, the pulse frequent and feeble. There is muscular relaxation, the skin is pale and covered with sweat; temperature in axilla or by mouth may be, at this time, only slightly elevated, or even subnormal. Temperature taken in the rectum shows marked elevation; there is usually marked restlessness. The abdominal wall becomes rigid and board-like or balloons out (intestinal paresis) auscultation shows absence of peristalsis. In these desperate cases perforation and extravasation are usually coincident with the onset of the severe manifestations. Prognosis must of necessity be very guarded and treatment must, to give best prospect of succor, be prompt.

In the majority of perforative cases, fortunately, the development of the case is by no means so rapid and the symptoms presented during the first day or two of the disease not so grave.

Perforation occurs when protective barriers have been thrown out and the general peritoneal cavity shut off and guarded by more or less firm adhesions.

The primary cause of appendicitis is certainly an obstruction to the emptying of appendiceal contents into the colon. It is well known that there are always present in the appendix abundant micro-organisms ever ready to attack tissues in a condition favoring infection. It will be admitted, also, that there is always a possibility of entrance of fecal matter into the appendix.

A recent article by Van Zwalenburg[3] on "Obstruction and Consequent Distention the Cause of Appendicitis," calls especial attention to the important role played by obstruction and distention in producing mechanical pressure on the blood vessels supplying the organ and the consequent interference with the circulation in the part. His deductions from cases in practice, and from experiments on dogs, seems to me most logical; and his explanation of the various phenomena of appendicitis the best yet offered. As to the form of

obstruction in the appendix; irregular development of the appendix with a narrowing of the lumen at some point; most often at or near the attachment to the cecum; thickening of the mucous membrane; bends or kinks in the appendix; short mesentery, are recognized causes of obstruction. Then in most cases of perforative appendicitis foreign bodies or concretions are found. It has been clearly shown that never an appendix was found which showed evidence of inflammation, past or present, which did not present a constriction in some part of the lumen. A concretion is, however, not essential to the occurrence of perforation. Any fecal mass may become so firmly packed into or against a constriction as to occlude for a time its lumen. This mass may give way before the process ends in perforation. Putrefactive changes may so soften the mass that it will pass before the damage reaches the stage of perforation. But the constriction may hold the mass long enough and the distention of the distal portion of the appendix may be so rapid as to produce pressure and consequent stasis of the circulation sufficient to end in localized gangrene and perforation.

On the tightness of the constriction and the nature of the obstructing mass must depend in great measure the degree of obstruction to the emptying of the appendix into the cecum. Given a constriction, and in the distal portion of the appendix an occluding mass which is unable to pass, and conditions are ripe for a perforation. As is so clearly pointed out in Van Zwalenburg's article, such a condition quickly brings about an effusion into the appendix; this in turn further distends this organ, thus increasing the compression of the capillaries and veins against the fibromuscular walls, in whole or part occluding them. Finally, when the pressure in the arteries and the intra-appendicular pressure is equal, there must result complete stasis in the capillaries and veins. The tissues thus deprived of their life fluid, the blood, the infective micro-organisms have full scope for their activity; result, a gangrenous or ulcerative process at once established and perforation occurring very shortly. The fact that constriction is always found and a concretion so very often, makes it appear entirely reasonable that this explanation holds good for most, if not all, cases of perforative appendicitis.

Perforation does not often occur with the first attack; usually only after recurrent trouble. If the history be carefully and fully studied there will nearly always be record of antecedent disturbance referable to the appendix. Every surgeon of large experience knows how often cases which have for a long time had more or less pain and tenderness, not necessarily constant, but recurring—on removal of the organ show present one or more fecal concretions in the appendix. Such cases are in constant danger—perforation is, perhaps, imminent. Such foreign bodies or concretions may later be forced past the constriction into the cecum and disappear. As to the frequency of concretions, Van Zwalenburg calls attention to the collection by Talamon of 760 cases of perforative appendicitis in which 450 foreign bodies or concretions were found—nearly two-thirds

of the cases—and quotes Hartley: "Is it unreasonable to assume that the other one-third had escaped into the colon after temporarily obstructing the lumen?"

Many cases of so-called catarrhal appendicitis, or cases so diagnosticated, certainly present the conditions which favor the occurrence at any time of a perforative attack. Also, many cases which pass through attacks which are supposed to be catarrhal have suffered perforation and have remaining conditions, the dangers of which it is hard to estimate. It fell to my lot to operate on three cases within a week illustrating these features; in two of these cases the patients suffered from recurrent attacks, and came for interval operation. In both cases extensive adhesions were found, and at the site of obstruction there was found a perforation and a small quantity of inspissated pus. In the third case the boy had been examined by two excellent practitioners, and both told him that he suffered from catarrhal appendicitis. After careful examination I concurred in this diagnosis, and told the patient and his parents that the case seemed so mild that we could not urge operation. However, I pointed out the possible dangers of an appendix apparently so slightly diseased and the fact that it was impossible to know the exact condition without operation. On this statement operation was accepted, and again extensive adhesions with a kinked appendix, perforated, and showing a small amount of inspissated pus at the site of perforation, were found.

In looking over the literature of this subject I was struck with two cases reported by Willy Meyer.[4] One case of operation in the interval; the patient apparently in perfect health; six large fecal concretions were found in the appendix; one had produced pressure necrosis, and part of the wall was ready to break,

In the second, also an interval case, in the tip of the appendix an ulcer was found, the base of which was separated from the free peritoneal cavity by a very thin lining of serous membrane.

These cases serve to illustrate and emphasize the great dangers of perforation to which some of the *apparently* mild cases are exposed.

Inflammation of the different coats of the appendix proceeds from within outward, *i. e.*, from mucous membrane to peritoneum. The area of ulceration is largest in the mucous coat. When conditions are present which may proceed to perforation the initial pain is probably due to distension of the appendix, and the severe colicky pains are due to contractions of the muscular coat in its effort to expel the contents. When the gangrenous process is established, pain may cease for the time being, and the next severe pain be notice of the ulceration of the peritoneal coat and perforation with consequent extravasation of the contents. If the process be not too rapid, as the ulceration deepens and involves the peritoneal coat, lymph thrown out on the free surface of the serous membrane of adjacent coils of intestine becomes adherent to the appendix, and thus nature provides a barrier against the extravasation of the appendiceal contents into the general peritoneal cavity. Should the necrotic process caus-

ing the perforation be so rapid that it gives insufficient time for the building up of this protective barrier we have to deal with a fulminating case of appendicitis, one of the very grave type. With the slower process we have a localized abscess with which to deal. Pus having formed, the collection burrows in the direction of least resistance. In this connection the position of the appendix and the location of the perforation have an important bearing. If an appendix hanging over the brim of the pelvis and pointing downward into the pelvis have a perforation at the tip, the condition is more favorable than if the perforation occurs near the proximal end. In the latter case the chances of general peritoneal infection are increased. An appendix which lies near the anterior abdominal wall, to the median line of the cecum, and perforates in its distal portion, gives very great danger of general peritoneal involvement. An appendix lying to the outer side of the cecum, the distal end being found in the neighborhood of the liver and perforating in this region, adds much to the danger, because the lymphatics in this part are very active, and there is great danger of spread of the infection, and the formation of secondary collections in the thorax or subphrenic space; infection of the liver and kidney. Perforation of an appendix placed behind the cecum or between the layers of the meso-cecum carries with it especially great dangers of retro-peritoneal infection, lymphadenitis and phlebitis. There is also danger of gangrene of the bowel, due to disturbance of the circulation of the gut by the burrowing process, by pressure necrosis or septic thrombosis of mesenteric vessels.

Did we always find the classic symptoms, the diagnosis of perforative appendicitis would be comparatively easy. This, however, is far from being the case. We must not, cannot, depend too much on finding so called classic symptoms. No condition may be more difficult to recognize, of having its seriousness more completely masked, than that which is present soon after the rupture of an appendix, and when general peritoneal infection has just occurred. This condition is one of the most variable, complicated and treacherous in its manifestations to be found in the entire range of medicine and surgery.

The temperature is no true guide to the diagnosis. However, frequently we find a marked discrepancy between the temperature taken by mouth or in the axilla and the temperature taken high in the rectum. The temperature by rectum will often be found varying from two to four degrees from that taken by mouth or axilla. Rectal temperature may be perhaps 102 or 103 when temperature in axilla or by mouth is normal or below. Such a difference is a strong indication of peritonitis.

The pulse is more reliable as a guide in a general way; ordinarily being rapid and the rate increasing as time goes on; but I recall a case in which operation revealed a perforated appendix with concretion, abscess, and a large quantity of pus in the pelvis, in which the temperature never rose above 99.6 and pulse was never more than 80. *Pain*, while a valuable symptom, is frequently misleading. It may be located in any part.

Sense of localization is absent from the viscera and pain due to visceral disease may be referred not to the actual seat of the disease, but to an area in the body wall supplied by sensory nerves which have an intimate relationship in the cord with the sympathetic nerves supplying the affected viscera. Pain at the beginning of a perforated attack, severe, spasmodic, colicky, probably due to the effort on the part of the appendix to expel its contents, often disappears for a time when the gangrenous process is established, but recurs with renewed violence when perforation and extravasation occur.

When the appendix is located in the pelvis or pelvic peritonitis exists, urination increases the pain, especially at the end of the act; probably because the contracting bladder drags upon the inflamed parts. Muscular rigidity, although usual, is not always present. Respirations should be carefully watched. Ordinarily the abdominal muscles take but small part, respiration is shallow, thoracic.

Auscultation of the abdomen will usually show absence of peristalsis. An effusion in the peritoneal cavity can sometimes be made out. Rectal touch will frequently reveal an exquisite tenderness due to beginning peritonitis. The blood count may give valuable indications. To be of most value it should be made frequently. The demonstration of a relative leucocytosis is an indication of more value than a showing of an absolute leucocytosis. An increase in the proportion of the polymorpho-nuclear cells, which is normally 70 per cent., 75 per cent. to a proportion of 85 per cent., 95 per cent. indicates a grave condition, with the presence of pus. Leucocytosis may be absent in perforative cases with virulent infection; when the patients are too feeble to respond to the action of the toxæmia. Most writers agree that classical symptoms, sudden and severe pain in the right iliac fossa, with localized tenderness and vomiting are much less constant in children than adults. In children localized tenderness seems a more reliable sign than the localized pain. Pressure over the McBurney point will usually cause the sufferer to wince. I do not mean to enumerate other conditions which may simulate perforative appendicitis, except to mention that here in the Mississippi Valley especially, cases of malaria are occasionally met with which easily mislead us, closely simulating perforative appendicitis. One such case I recall in which the symptoms pointed strongly to a perforative appendicitis and in which the diagnosis was concurred in by three very competent men. There existed a leucocytosis of 25,000; malarial plasmodium could not be found after repeated search. Operation showed an appendix with no evidence of disease, and the patient promptly recovered upon the administration of quinine. The appearance of severe shock or collapse early or at the beginning, if a secondary attack of appendicitis, gives strong evidence of perforation. The face grippe, forehead furrowed, features drawn upward is often marked in perforative cases were suffering is severe. Such facial aspect, with restlessness and marked vital prostration, may indicate a gravity unnoted in any other way. The period of repose, which is com-

mon to all perforative lesions of abdominal viscera; the cessation for a time of most marked and disquieting phenomena, in a grave case, must not mislead us and arouse false hopes. Acute, perforative appendicitis is one of the most dangerous of conditions and prognosis must always be guarded. Vomiting, severe and continuous, or which, having appeared early, disappears for a time and then returns, has a great prognostic value and indicates a grave condition.

I think that all the profession will concede that perforative appendicitis is distinctly and always a surgical disease and that the treatment must of necessity be operative. So much being granted, there remains for solution only the question as to when shall operation be made. As I have said earlier in this paper, I believe that perforation occurs but rarely in primary appendicitis, *i. e.*, in the first attack. For the few cases in which this unfortunate accident does take place I believe that operation should be made at once if surroundings and circumstances are such that aseptic operation can be had at the hands of a competent and experienced surgeon. Cases of perforation occurring with the first attack are ordinarily of the fulminating kind, and symptoms generally point to perforation with extravasation and extensive peritoneal infection. It may be difficult or impossible to differentiate between perforation of the appendix and perforation of the stomach, duodenum or other viscera, but granted that the diagnosis of the perforation of an abdominal viscus with extravasation into the peritoneum can be made, I think that the surgeon should not hesitate to operate at once. This plan, it must be recognized, gives the unfortunate sufferer a better chance for recovery than any waiting policy can do. What one can hope to gain under such conditions by waiting I cannot see.

There must result a widespread, if not diffuse, general peritonitis, and it is well known that such a case must almost certainly succumb under medical treatment, and delay in operation gives time and opportunity for this peritonitis to destroy, from hour to hour, the patient's chances for recovery by operation. On the other hand, if the source of infection be removed, so far as possible, and the previously healthy peritoneum be given a chance to assert its wonderful power, it may, and frequently does, overcome the damage already done, and the patient recovers. The wonderful results recorded recently by Dennis[5], in whose series of 119 cases, with only two deaths, were eleven cases of acute perforative appendicitis without limiting abscess and with pus free in the peritoneal cavity, and with general peritonitis, are most gratifying. In these eleven consecutive cases were no deaths. In two cases the time after the onset of the attack before operation is not stated; in two, operation was made one day after onset. In one case time is given as several days. In three cases operation was three days after onset, and in two cases five days after beginning of attack. In one case operated on three days after onset the infection was not by the colon bacillus, but by streptococcus, but all these cases recovered. Remember that these cases would all have been fatal without operation. Recall, too, that

the mortality in all cases of appendicitis under medical treatment is about 16 per cent., with 30 per cent. of relapses.

Fowler estimates that 13 per cent. of all cases develop diffuse peritonitis. There is perhaps a limited number of cases in which perforation occurs during the first attack, but in which the process is not rapid. In these cases there may very reasonably appear to be a hope that the inflammatory process may be arrested and the patient recover and be operated on during the quiescent stage. Of course, if we could be sure that the patient would survive the initial attack and come to operation afterward, in the interval, it would be best to wait, for the mortality in interval operation should be nil. We have seen, however, that the symptoms of catarrhal and perforative appendicitis are often alike, and there is no way to distinguish between them. We know that in most cases operated on, conditions are found worse than estimated before operation. Therefore, my feeling is that where diagnosis can be made early, operation should be made at once. In advocating early operation I do not lose sight of the difficulty of operation in acute cases. The uncertainty of finding the appendix has been mentioned. This may possibly occur, but of this I must acknowledge myself skeptical. My experience in a very considerable number of cases is that, while it is often quite difficult to find an appendix in acute cases, that where no pus is present or pus is present in only limited quantities, the appendix can be found. Bearing in mind the increased danger of operations in the presence of extensive adhesions, resulting from the policy of delay, why wait, when the diagnosis can be made early? Amelioration of symptoms should not contraindicate surgical interference. Dangerous pathologic changes may progress when all conditions *appear* favorable. The exact conditions existing cannot be known until the abdomen is opened. There remains, unfortunately, a large class of cases to be considered in which the patient is first seen by the surgeon in the third, fourth, fifth, sixth or seventh day of the attack, either from difficulty in arriving at a diagnosis, timidity on the part of the attending physician or for other reasons, sometimes good and sufficient, the patient comes to the surgeon after the favorable time for operative interference is past. Such cases must, I contend, be each considered on its merits. It is in this class that we must of necessity pause to consider the excellent results arrived at by the method adopted by Ochsner, the withdrawal of all food and drink by the stomach, gastric lavage, rectal alimentation, and awaiting the favorable time for operative interference. This time would be, of course, when the abscess incident to the perforation is so strongly walled off from the general cavity that the abscess can safely be drained and the appendix removed or left for removal later. Here experience and a careful study of each individual case must guide us in our judgment as to the best time for operation. I know of no way to generalize. Cases come on the third, fourth, fifth, sixth, seventh day after onset, with severe distention of the abdomen, tense abdominal muscles, bad facial expression, marked

nervousness, pulse above 100, persistent nausea or vomiting. These are desperate conditions, yet *not all* such patients have diffuse general peritonitis, and some improve under Ochsner's regime, so that conditions are much better for operation at a later time than when first seen by the surgeon. It must be, however, a bold man who advises delay. Rehn[6] says very pertinently: "We dare no more ask *which case* should I operate, but when do *I not need* to operate?" However, he who waits must be ready to assume tremendous risks and ready to answer most scrupulously to himself. All conditions should be most carefully and critically watched, with especial bearing on the point *not to allow* the most favorable time for operation to pass. I have never yet seen an appendicitis case operated on which I felt came to operation too early. All of us have unfortunately seen cases where the patient's chances would have been much improved by earlier operation.

Finally, I wish to be recorded as in favor of the *prophylactic* treatment of perforative appendicitis. Since the most of perforative cases occur in secondary attacks, why allow patients to take such desperate risks? When a patient has recovered from one attack of appendicitis, be it of apparently ever so mild a form, remove the diseased organ. We know that the mortality of the interval operation should be nil, or practically so; why, then, expose patients to recurrence and all its attendant dangers? Even if an appendix occasionally be removed from a patient who might never have another attack, to what harm? I am willing to grant that a certain small proportion may have one attack and never a second. This number, however, is so small that I feel sure the mortality would be greatly lessened were all cases which recover from a first attack subjected to appendectomy before a second attack. I am not losing sight of the occasional difficulties of diagnosis, especially in children, to which our attention has lately been drawn. But better an occasional *normal prophylactic appendectomy* than the deaths incident to recurrent attacks of appendicitis.

Pardon my once again sounding a caution against operation at the hands of incompetent men. Dennis pointedly declares even catarrhal cases safer by Ochsner's plan in the hands of a novice than by operation, and cites an instance coming within his knowledge of one surgeon (save the mark) who operated on nineteen consecutive cases with nineteen deaths. The position which I have taken in this paper presupposes a fair amount of knowledge, experience and operative skill on the part of the surgeon. When the first attack is fulminating, death may be unavoidable. If a patient suffering from perforative appendicitis has had previous attacks, some one is responsible for the perforative case. Let us not be compelled to hold ourselves responsible for any such unfortunate results.

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CHRONIC APPENDICITIS.

By C. Lester Hall, M. D.,

Professor of Gynæcology and Abdominal Surgery Medico-Chirurgical College, Kansas City

The division of the subject of appendicitis under so many headings necessarily curtails what I may have to say on the subdivision assigned me, but there is no phase of this important subject the discussion of which is not of interest and grave importance to the professional man. The progress made in the study of this disease, which has been discussed so extensively in medical literature, and a knowledge gained by the laity, should make a condition of *chronic* appendicitis less frequent. What I mean to say by this is, that the mortality and frequent disastrous results in appendicitis, when not interfered with surgically, should have taught the surgeon as well as the general practitioner and the people, that absolute safety rests solely upon surgical interference.

The appendix is considered the weakest segment in the intestinal canal because of its poor vascular, nervous and lymphatic supply. Its open intestinal ostium makes it a source of ever-present menace to health and life, and its frequent contact with the psoas muscle, to which it is often adherent, is one of the common causes of disturbance.

Of all diagnostic symptoms perhaps muscular resistance over the region of the appendix is the most trustworthy, and yet this is not always to be relied upon. The value of the blood count in differentiating between appendicitis, colic, typhoid fever, ovarian neuralgia, impaction of feces and floating kidney, though variously estimated by different operators, is by the majority given credence as to its guidance. Deaver says it is valueless as a diagnostic aid. Perhaps the most difficult differentiation is to be found in the right side trouble in women. The appendicular, tubal and ovarian pain and sensitiveness are often so closely associated as to be perplexing to the most careful and acute diagnostician. As a rule, however, a vaginal and rectal examination will exclude tubal disease when not involved, though it often *does* exist in conjunction with appendicitis. Here, again, muscular resistance will aid us, as it is not nearly so rigid over the ovarian as over the appendicular region.

As in chronic appendicitis we do not have to deal with the first attack, and perhaps only after a number of attacks, we more frequently do not encounter pus cavities. In such cases we often have as a result of repeated attacks, adhesions which establish a condition of confirmed invalidism. In these abdominal inflammations the omentum in its great and conservative function becomes adherent to the inflamed area, and often acts as a constrictor upon the ileo-cæcal region, interfering with the action of the bowels and the passage of gas. In chronic cases, where the inflammation has not extended beyond the peritoneal coat of the appendix, recovery generally follows operation in which the appendix is removed, but in pus

formation in the walled-off abscesses it is not always possible or *prudent* to remove the appendix. Despite the position taken by Deaver and others, that the appendix should always be removed, not only the *trend*, but the actual practice of the great majority of surgeons tends toward the more conservative practice of opening the abscess and draining. As sometimes happens as a result of appendicitis, we have a collection of pus in the pelvic cavity which can be best evacuated through the vagina or the rectum. Deaver condemns this method of dealing with pelvic accumulations, in which, however, all writers do not agree.

A few years ago I had just such a case in a man with an enormous collection of pus in the pelvic and lower abdominal cavities, which, I am satisfied, had I evacuated through the rectum, my patient would have recovered. As it was, an abdominal incision was made and the upper peritoneum became infected with a fatal result.

As to the best time to operate in a case of appendicitis where the case is not seen early, I am impressed with the valuable experience of Ochsner, who waits for the subsidence of acute symptoms, and operates between the attacks. He reports only eight deaths out of 248 cases thus treated. Sir Frederic Treves reports one thousand cases operated upon between the attacks with only two deaths.

Within the last few years results have been obtained in desperate cases of general purulent peritonitis from appendicitis by free drainage of the abdominal cavity. Preferably in these cases it is best to make two openings for drainage, with copious flushings of the peritoneal cavity with a normal salt solution of sterile water, or simple drainage without flushings, as the judgment of the operator may dictate.

Deaver has said that such a result is not possible, but as we grow in experience by actual practice our opinions undergo evolution which compels us to accept measures formerly condemned, and to condemn methods formerly accepted.

TECHNIQUE IN APPENDICEAL OPERATIONS.

By Jabez N. Jackson, M. D.,

Professor of Surgery, University Medical College, Kansas City.

In the technique of appendectomy the first problem presenting is as to the

Location of the Incision. — This will primarily depend upon the location of the appendix in the individual case. The incision must be so placed as to give ready access to the focus of disease, and may therefore occasionally wander to a considerable extent. In the vast majority of cases, however, or in what may be considered normal cases, the incision must be located somewhere near the so-called McBurney's point. The incision most frequently employed is placed parallel to Poupart's ligament with McBurney's point as its center. As a matter

of fact, for most direct access to the appendix the incision should be made slightly further down, though the anatomical development of the abdominal muscles makes the higher incision preferable where one does the intermuscular or gridiron operation. In some instances where the appendix approaches more nearly the median line, a straight incision paralleling its fibers and near the outer edge of the rectus muscle is preferable. In this instance the muscle is either drawn to one side with retractors or its fibers split apart, and no muscular fibers are cut transversely to favor subsequent hernia. This incision I think especially desirable where, in the female, there is a question as to our differential diagnosis between appendiceal and tubal, or ovarian, disease.

In *retrocæcal* or *retro-peritoneal* cases with abscess formation the incision should approach more nearly to the pelvic crest and should be rather backward than downward, Thus the abscess is reached from behind and frequently entirely retro-peritoneally, thus lessening the danger of disturbing protective adhesions in front and internally and of infecting the general peritoneal cavity. I consider it likewise preferable in a large percentage of cases operated upon in the mid-early stages of an acute appendicitis, since the general peritoneal cavity is thus saved from manipulation, which endangers diffused infection.

Length and Character of Incision.—In general terms the rule should be to use as small an incision as is compatible with correct technique in the intra-abdominal portion of the operation. In abscess cases, of course, a freer and larger incision may be necessary for adequate drainage. Likewise, in cases of extensive adhesions without pus a rather free incission may be necessary. But in the cases of early operation, and in catarrhal appendicitis, or in the quiescent stage of recurrent appendicitis, unless complicated by extensive adhesions, an incision of from one and one-half to two inches should be ample to an experienced operator with intelligent tactile sense. In favorable cases with thin and relaxed abdominal walls I have occasionally found a one-inch incision entirely adequate.

Character of Incision.—(*a*) The straight through-and-through incision is probably the one most used. Where a long incision is necessary it is, of course, the only alternative, especially in pus cases. (*b*) Whenever possible, however, I greatly prefer some method by which the transverse division of muscular fibers can be avoided, since thereby we greatly lessen, in my judgment, the liability to post-operative hernia, and, likewise, much decrease the necessary time of detention in bed after operation. The incision through the sheath of the rectus muscle, as previously mentioned, has, therefore, an advantage over the straight muscle-cutting incision generally used. (*c*) The ideal of all incisions, however, when applicable, is the intermuscular, gridiron, or McBurney incision, as it is variously known. In this operation we split between parallel fibers of each of the three planes of abdominal muscles, each of which, likewise, runs in a different general direction. Retractors hold the muscles apart while the intra-abdominal work is done. At the completion of the operation, when the

retractors are removed, the various planes and fibers fall together so naturally and nicely that deep suturing seems almost unnecessary, and the strength of the abdominal wall is not impaired at all. In these cases a week or ten days' confinement in bed is all that is required. It can be adapted to all cases except abscess cases and cases of extensive adhesions, where the limited opening afforded is inadequate, or to cases where the appendix does not underly this muscular plane. It seems ideal.

Peritoneal Protection.—In cases of localized pus formation, where nature has not previously walled off the general peritoneal cavity, or where these adhesions are recent and delicate, it is very important to thoroughly wall around the abscess area with gauze packs or sponges before opening into the abscess itself, thus protecting the general cavity from being flooded with material for general peritoneal infection. These protective barriers are not disturbed until our intra-abdominal work is completed, when, after the proper cleansing of the infected site of the abscess, they are either replaced by permanent protective gauze drains, or if drainage is not required, they are removed entirely. In retrocæcal appendicitis with pus formation this precaution is especially urgent. In fact, in these cases (which Deaver calls the "bad type" on account of the extremely high mortality attending them) I believe it very much safer to operate oftimes in two stages. In the first operation the cæcal area is simply well packed around with gauze which is left in *situ* two or three days. Then when adequate protective adhesions have formed, the retrocæcal space can be opened up without fear of peritoneal infection. This procedure combined with the posterior incision for drainage previously mentioned, would undoubtedly greatly lower the mortality in this dread type of trouble.

Finding the Appendix:—The abdominal cavity having been opened the next problem is to find the appendix. In this part of the technique I have often been surprised at the apparent uncertainty of method employed by many surgeons, who seem entirely blind to the definiteness of anatomical construction, and who pick up at random first one loop of presenting intestine and then another in their effort to find the ascending colon which is the usual guide employed. Much valuable time is thus lost and needless handling of the viscera is occasioned. Let it be remembered that the meso-colon of the ascending colon is always the outermost point of reflection of the peritoneum from the posterior parietal wall. Then remember that the attachment of the mesentery running obliquely downward from the splenic flexure on the left joins the mesocolonic reflexion on the right in the right iliac fossa. At the juncture of these mesenteries is always located the caecum and with it the appendix. The index finger, therefore, entering the abdominal cavity quickly follows the lateral abdominal curve downward, backward and then inward until the peritoneum is felt to leave the abdominal connection to pass on to the ascending colon. The colon should thus be immediately located and picked up if desired. Then we can follow its longitudinal bands

downward until they terminate in the attachment of the appendix below. Or, better still, in the majority of cases when we detect the mesocolonic reflection, we simply follow the finger down its outer border until the finger slips around its lower edge where it joins the mesenteric attachment at an acute angle. Here the tactus eruditis will usually recognize the appendix, which is then picked up and delivered without necessitating the delivery of any portion of the other intestine. This can be done more quickly than described, and, while a small point, is one which adds to the beauty and completeness of anatomical surgery.

This technique is obviously limited to cases with few or no adhesions. In cases of extensive adhesions, as a rule, it is necessary to deliver the colon by the first described method in order to thoroughly deal with the adhesions surrounding both colon and appendix whose division is of equal importance with the removal of the appendix.

In abscess cases, and especially in those of long standing, when the appendix is thoroughly hidden in a maze of peritoneal adhesions, it even becomes a question as to whether it is advisable to make a prolonged or thorough search for the appendix at all. Of course, if this can be done without undue danger of liberating pus into the free cavity, it should be done. Otherwise, I consider the determination to find the appendix at all hazards a dangerous procedure. It is well to remember here, also, that sometimes in these cases there may have been primary separation of the appendix by necrosis, close to its attachment to the caecum, and that there is, therefore, no appendix to find. Even should the appendix not be found and give rise to later trouble, it would at least be safer to remove it at a later operation in a non-septic stage. In many of these cases, therefore, simple evacuation of the abscess with thorough drainage without location of the appendix is a safer procedure.

Amputation of Appendix.—When the appendix has been found and delivered we are ready to proceed with its amputation. Here we find much variance in the technique of various surgeons. The preliminary ligation of the mesentery along its free border to control its arterial supply is usually made with catgut by most operators. Then the amputation of the appendix may be completed by various modification of essentially four general methods. The more radical procedure consists in a *complete excision of the appendix* at its juncture with the caecum and a closure of the intestinal opening by suture, as done for any intestinal wound. In cases where the appendiceal perforation is well up at its base this is practically the only course open. It may likewise be done in any case and is certainly a pretty procedure. On the other hand, the free opening into the caecum permits a possible leakage of intestinal contents, especially if the caecum is full of fluid faeces, and thus adds an element of danger of infection from either primary or secondary leakage. It is not, therefore, my operation of choice.

(2) Another method, as advocated by Dawborn of New York, is after amputation of the appendix near the

caecum to dilate its lumen with forceps and then to invaginate the stump into the interior of the cæcum and close the orifice externally by peritoneal suture (Lembert). This method presents the same objections as the first method described without its attendant advantages.

(3) A third method is by compression of the stump of the amputated appendix with compression forceps to prevent leakage and then shoving it inward toward the caecum and covering with purse string or Lembert sutures. This is most expeditious and has given excellent results in the work of such men as the Mayo brothers and Nicholas Senn. To me it seems, however, likewise somewhat in danger of leakage.

(4) The fourth method consists in ligation of the stump after reflecting a peritoneal cuff, amputation with cautery knife or with knife followed by cauterization of the mucous lining with cautery or carbolic acid, and then closure of the peritoneal cuff over the stump. This has always seemed to me to be at least the safest method as it affords absolutely no chance of leakage. Is is, however, difficult when we have a highly inflamed and friable peritoneum, with which it is difficult to reflect a cuff at all. In that event I believe the excision method preferable.

In any method one essential feature should be to thoroughly cover all raw surfaces with fresh peritoneum to prevent the troublesome after-pains from adhesions. In this connection I desire to suggest that if the mesentery of the appendix be cut long, it can be admirably used to suture over the stump wound and afford thereby also a double layer of protection from leakage.

Toilet of Peritoneum.—After the appendix is removed, in clean cases, no toilet of the peritoneum is required unless there has been leakage. Even ordinary leakage should have been caught on a preliminary gauze packing in the wound around the prospective stump, and clean sponging before dropping the stump back, is all that is required. The less the sponging and handling of an infected peritoneum the better.

In pus cases several different methods are used. (1) Free irrigation was formerly the rule and is still used by many. Personally I think it rarely necessary or advantageous and often a source of great danger from diffusion of infection. In localized pus other methods are equally as good. In diffused suppurative peritonitis it is useless.

(2) In the latter class of cases, however (usually most desperate), I believe the free continuous irrigation of the peritoneal cavity with hot water at a uniform temperature of about 110 F. for a prolonged period may save otherwise hopeless cases. For reasons for this belief I would refer to my article read before the St. Louis Medical Society on December 19, 1903, and published in the *St. Louis Medical Review*.

(3) Morris, of New York, has advocated the cleansing of the infected area with peroxide of hydrogen. Personally I have never found any value from its use, and consider it instead an added danger from the liability to diffusion of the pus with the distension produced from the gas liberated in its use.

(4) In the majority of pus cases clean dry sponging of the infected area, with the least disturbance of distant areas, is, in my judgment, by far the best course to pursue.

Drainage.—Drainage is becoming less and less popular in abdominal surgery. In clean cases there is no excuse for its use. In localized recent pus cases, after thorough clean sponging, it is rarely necessary, as Morris has well demonstrated. In large abscesses, however, and in rather virulent cases at an earlier stage (particularly in streptococcie cases) it is perhaps safer to use drainage for a short while at least.

In that event a rather free, but loose, gauze drain is desirable. Tubular drainage is of little value unless combined with the gauze pack. If gauze drainage be found necessary it is best not to remove it before the end of four or five days. An earlier removal is painful, opens new opportunity for infection, and if not necessary longer was not necessary at all.

Closure of Abdominal Wound.—Unless drainage is necessary the immediate closure of the wound is next in order. The method of closure is to some extent dependent upon the character of the wound. The so-called through and through method, approximating all layers at one time, may be necessary to save time in cases of prolonged operative procedure or in shock from any cause. Otherwise I think it should become obsolete.

The deeper structures should be closed by layer suture; plain catgut for peritoneum and chromicized catgut for muscles and fascia. The aponeurosis of the external oblique should be sutured with especial care, as it is so largely responsible for the integrity and strength of the abdominal wall. Care should be taken that these sutures are not tied too tight least they produce strangulation of the tissues and lead to trouble from strangulation necrosis. Approximation without tension is all that is desired. The skin wound is preferably closed with a subcuticular suture, and for this purpose I prefer silkworm gut. If this alone does not produce absolute skin approximation a few strips of adhesive over a small longitudinal gauze pad, or compress on either side, will remedy the defect. By this method the hideous ladder-like scar of the through and through stitch is replaced by a simple linear scar little more perceptible than a scratch. And in this particular, especially in women, it is well to remember that cosmetic effect adds much to the esteem of surgery as an art as well as a science.

Discussion.

Dr. George Halley, Kansas City: —The subject of appendicitis appeals to every practitioner in a way. As a rule it is the medical man's rather than the surgeon's disease. It has been well said that eighty-five per cent. of the cases get well by ordinary treatment—rest in bed, opiates, etc. Some have gone to the extent of saying that without any treatment whatever eighty-five per cent. will recover, that is, from the attack. It is the remaining fifteen per cent. that will require the attention of the surgeon. It is this large number of cases rather than those to which the essayists have devoted their attention

that will have to be discussed by the general practitioner. The cases of catarrhal appendicitis are those that appeal to every practitioner for careful study, for considerable experience has shown me that the danger is not in not operating, but in jumping at false conclusions and operating unnecessarily.

Dr. J. M. Allen, Liberty:—I speak as a general practitioner who has seen many cases of appendicitis before and since it was recognized as a disease. Before the seventies appendicitis was not recognized as a cause of peritonitis as it is now. The difficulty in diagnosis is the differentiation of it from perityphylitis, where many mistakes are made. There are two forms of this disease which are quite distinct—the sthenic and asthenic. The sthenic is more apt to result in resolution than the other variety. A large majority of the cases of the asthenic result in pus formation; therefore should be operated on at an early stage. Without discriminating as to the character of the disease, it is claimed that 75 per cent. recover without operation. I think I can safely say that 50 per cent. of these recoveries belong to the sthenic variety, because the natural tendency of this form is the more rapid formation of adhesions. In the treatment of these cases that tend to recovery, I confine my cases to the bed for five or six weeks so that the adhesions may be firm and no risk of dissolving. I have not had a single case of this kind to have a secondary attack.

Dr. O. B. Campbell, St. Joseph:—The position taken by the various essayists this morning on this vast subject can be agreed in by most of us. If it were possible for the clinician to diagnose most cases, then there would be no question when to operate and when not to operate. Then the position taken by the first essayist on the subject of catarrhal appendicitis would be correct. But this position, not to operate in catarrhal appendicitis, is the stumbling block that has caused more deaths in appendicitis than any other. Physicians and surgeons who hesitate to operate have practically hidden behind this, which is particularly a misnomer. When the physician can say that he is dealing with a case of catarrhal appendicitis, or one that is likely to perforate, or that there is a perforation and that thrombi are forming, then he will be in a position to know when to operate and when not to operate. But none of us can hope to do this. Therefore, I am glad we do not quibble much on this subject. Members of the profession the world over recognize that we are dealing with a condition we cannot always diagnose. The position taken by some, to operate within the first twenty-four or forty-eight hours, is the position that has stood the test of time. Of course, there is a little qualification necessary. We do not mean to operate within the first twenty-four hours after seeing cases that have been running on for seven or eight days. It seems to me that the profession has made the mistake of thinking that this means that operation must be done within the first twenty-four hours after the patient is seen. We mean within the first twenty-four hours after the onset of the disease. It seems the members of the profession are getting a little mixed on the

Ochsner treatment, the starvation treatment. Formerly the profession treated appendicitis by the use of opium, and so the patient starved himself because he could keep nothing on his stomach. Of course, the Ochsner treatment is a dangerous procedure, because there may be present any one of the conditions mentioned here this morning. Where the pus is being walled in, where we feel it would be hazardous to open the abdomen at all, then the use of opium and rectal nourishment might be all right. It has a place but not in every case.

Dr. Herman Tuholske, St. Louis: —It seems to be almost a matter of supererogation to discuss the most excellent papers I have heard this morning. We have had a complete, scholarly, erudite presentation of the subject. I do not think we could, in the different opinions expressed today, find points not touched upon by some of the gentlemen. It seems to me, therefore, that nothing more need be said. It would be simply, perhaps, a matter of individualizing. It never can come to be a fact that for any surgical disease or procedure we trace the exception that makes the rule. It is the power of individualizing that makes for success. It is therefore impossible to lay down a rule for every man. Each will judge according to his experience and mental caliber. I remember when I was young in appendicitis, being present at a meeting of the St. Louis Medical Society when appendicitis was being discussed. I was asked what I had to say on the subject. In the enthusiasm which experience had not yet cooled, I made this speech: Mr. Chairman, make the diagnosis and then operate. I do not know how much I have to retract, but I believe that in every case to which we are called it is not a question, shall we operate, but when shall we operate? I am not speaking for the surgeon alone. The physician who sees the cases is as able to make the diagnosis as the surgeon. The surgeon, possibly, does not see the case during the first twenty-four hours. The question is, when shall the surgeon operate after he sees the patient? A careful examination of the status præsens of the case is necessary. There are cases where the patient presents an appearance of well being and is clearly improving, where we can be fairly certain it would be good judgment to keep the patient under observation and operate after the attack. We may occasionallly make a mistake. There is no absolute sameness in appendicitis and there are always symptoms that must be taken into consideration. The diagnosis is sometimes difficult. Pain is not always in the right iliac fossa. I have cut for the appendix on the left side. I have opened the abdomen looking for an appendix and found a perforated Meckel's diverticulum. I have seen an appendix that was simply the result of a catarrhal appendicitis, and it was twelve inches long and four inches in circumference and held all the fluid it could hold. I have seen one nearly that size, full of pus and very much like an empyemic gall bladder. We may find (and that would perhaps make us think that there are cases which would not need operation) an obliteration of the appendix—appendicitis obliterans. I

remember one case of appendicitis recurrens. The periods between the attacks were of short duration, the condition recurring every few weeks, but there was the everlasting tenderness of a grumbling and kicking appendix. The doctor wrote me that he had a patient who had had a number of attacks of appendicitis and he wanted to know when to operate. I said, let him get well and send him to me. But this patient did not get a chance to come then. He had a few more spells and came a year later. I did my duty and cut him open and found this appendix after a great deal of trouble, and it was just a connective tissue string, the cavity absolutely obliterated. Did I do him any good? He was absolutely better off with that string than the scar. It would have been better to have kept my hands off.

Dr. C. M. Nicholson, St. Louis:—Having listened to a very scholarly presentation of the subject, the ideas set forth being in keeping with the most advanced thought of today, I feel there is little to do other than agree with what has been said. Dr. Jackson in speaking of the incision said it should be made over the appendix, which theoretically is eminently proper; however, it is difficult to determine the position of the appendix prior to the time the belly is opened. I know of no better rule than to make an incision half way between the umbilicus and the anterior superior spine of the ilium inclining downward and inward along the margin of the rectus which is uninjured.

The surgeon who can do a good piece of work with a one-inch incision can do better work with a two-and-a-half inch incision, except in the simple uncomplicated cases where the appendix can be brought out of the wound and the work done anterior to the abdominal wall, and even in those cases in order to have an inch incision in the peritoneum, it is necessary to make a two-inch incision in the skin if the muscle-splitting method is made use of, or even more than two inches if the abdominal parietes are very thick. Eighty per cent. of operations on the appendix are not operations for appendicitis. They are simply amputations of the appendix in which there has probably existed evidence of disease. It has been stated on good authority that thirty-one per cent. of cases in which the appendix is removed show no evidence of disease, sixty-nine per cent. show some evidence of disease. In this series all cases were operated on between attacks. Some gentleman in discussing the paper said "the time to operate on any case unless the symptoms are so severe as to lead us to believe the patient will not live, is between attacks." Then there is done not an operation for appendicitis, but simply an amputation of the appendix. I believe it is seldom that surgeons experience difficulty in finding the organ. The longitudinal bands of fibers on the colon if followed always lead us to that portion of the cecum to which the appendix is attached, whether it be (1) the conical foetal form, or (2) the more quadrilateral form, or (3) where that part of the caput coli that lies to the right side of the anterior band grows out of proportion to that part to the left of the band, or (4) that type in which the development of the part to the right

of the anterior band is excessive.

In case of large abscess where the general peritoneal cavity is walled off, where an incision over the most prominent part of the tumor allows the pus to escape, no attempt to find the appendix should be made. Simple drainage, as an abscess elsewhere would be treated, is all that is indicated. I make it a rule (to which there may be exceptions) in cases coming under my observation within thirty hours after the onset of the symptoms of the disease to advise immediate operation. In other words, if in an acute attack the appendix can be removed prior to the time infection of the immediate surroundings may have taken place, there is practically no more danger in operating than between attacks; however, if more than thirty hours have elapsed it is safer to wait until the inflammation has subsided. The simplest and I believe the most satisfactory method of treating the stump is inversion, following the application of the purse string suture at the base of the appendix. As to drainage, excepting the infected cases, I believe it should never be made use of.

SEX FORMATION AND DETERMINATION.

By T. F. Lockwood, M. D., Butler, Mo.

During the past decade, medical science has opened ranks, admitting certain literature pertaining to man's genius in controlling human sex, all of which has as yet failed to find permanent lodgment in the minds of true thinking men, and when I view the situation from the standpoint taken by those who claim to have discovered this profound secret, I cannot enter the subject very enthusiastically; in fact I could scarcely consider it all so absurd is the theory, were it not that leading medical journals, monthly magazines and daily newspapers were publishing such misleading lore, with loud illustrious comments editorially, therefore I cannot refrain from taking exceptions to such unscientific measures and hereby appeal to the better judgment of our distinguished profession to assist in adjusting the credulous opinion of those who may have caught the popular idea raging so prevalent a few years ago

It matters but little whether this question had ever been born, so far as lending weight to medical science is concerned It matters not whether we agitate the problem of sex formation at this period of human existence, or whether we should ever be awakened to an humble consideration of same, so far as its effects favoring mankind, or strengthening perpetuity of the species is considered, for the same immutable laws of nature will continue persistently in the fulfillment of an established purpose. For insignificant man to proclaim in the face of facts and common reason, that he holds in his hands the power by which he can refute Nature, and by a mystic wield of his wand, majestically turn out a boy or a girl at will, and for the pleasure of speculative parents, is a magician to be sure;

one who juggles with the profoundest mystery in God's whole universe. Such proclamations are mere mockery of the divine law of Nature and should receive but little if any credit in the minds of a pious public that stands too ready to accept one man's diversified opinion in the face of many opposing circumstances; remaining steadfast until by preponderance of evidence, it is found wanting. When a subdued conscience is forced to relinquish its grasp and so reluctantly yields to the convincing truths of science. Then, O then, how revengeful! How reversible becomes the law of the legions in condemning the whole medical fraternity for the mistake by one made.

We should tread lightly and cautiously through the mystic and meandering vale of Nature; we can but fold our arms in great wonderment while viewing the beautiful handiwork of our Creator, and should shun all temptation to criticise His plans; but let us ridicule man's effort to procure a patent on some portion of God's designs that may not seem in full accord with his whims and wishes. Hence this pretense as manifested heretofore by some one in the east, is my only apology for dealing with the sublimest entity of God's power, and to expose, if possible, the fallibility of man's ability to improve on Nature's methods in doing things. No man should speculate on God's providential plans, either for gain or publicity. If we had the power to govern sex, and could keep it a secret within our own bounds, our services would be sought far and wide and handsomely remunerated by the noble and wealthy of our land. We need not limit ourselves to pill-rolling and bone-scraping, but turn our attention to formulating boys and girls. If such power was given into the hands of men, how easy it would be for the physicians to control the destiny of the nations. What bloody conflicts would result if we preferred to turn out all males to become soldiers to fight for our country, instead of equalizing the number with the fair sex to neutralize the gross nature of man, and to perpetuate the human species. All this is too absurd to believe that God would trust such sublime forces in the hands of his weak and discontented creatures, to say what shall be and what shall not be, etc. How strangely I feel when I realize I might have been a woman had I not escaped the juggling hand of the sex specialist. It is really amusing to believe we might have been other than what we are, had we been dealt with in utero by some sex scientist. Admitting that sex government was a science, to be relied upon at all times and in the hands of every practitioner of medicine, what a grave responsibility resting upon the heads of a defenseless profession, when the fruits of our labor were born and reared to maturity to be confronted with all the sins and sorrows of each individual peculiar to their sex, and to stand face to face with a dissatisfied progeny while they heaped abuse upon us for manipulating and maneuvering with the forces that governed their being.

God in His infinite wisdom, planted a force which governs sex, not of man only but of every living thing, far beyond the meddling dispositions of men, and the same unchangeable law that governs the sex in the lower an-

imal, also controls it in man. The same force that governed the gender in the horse, made you masculine. No influence of mothers minds can be brought to bear upon nature's aim. No hygienic surroundings will change the cell that nature planted for a specific purpose. No dietetics will sprout the germ that marks our individuality; nothing but a fulfillment of law established in the beginning of God's creation is necessary to produce one sex or the other, and all theories to the contrary are absolutely bosh. Take, for instance, animals that produce their young in groups of three or more, that have a mixed litter as it were, how complicated would be the process governing each sex? Again, in the human family where twins are born, one male the other female. What kind of phenomena is requisite to establish both sex in this case? We had as well believe in the old-time and well exhausted theory of maternal impressions as to believe that mothers mind controls the gender of her offspring. We are only to be reminded of the process of conception and the role of gestation to realize the faulty relationship between the fœtus and uterus, all of which will aid us in discarding the superstitious belief that mothers mind causes deformities and so-called birth marks in utero. It is not difficult to recognize the impossibility of the influence of mothers mind to travel through a non-conductive medium. With like propriety we might say that the impassive mind of the cat painted the spots on her kittens, as to hold the mind of the mother responsible for all the sorrowful freaks that may occur to her offspring. Many physicians of years ago accepted the theory of "maternal impressions" and some are still clinging to the frazzle end of nothingness, dangling in mid-air, not knowing where to land, because of their not closely observing these same marks, these same deformities and the same deplorable freaks in the offspring of lower animals whose mind is continually at rest as far as thoughts for the welfare of her young are concerned. Take the impassionate hen, that lays the egg then loses sight and sense of its whereabouts, or even its existence, when a second hen is substituted to hatch the chick and to become its foster mother. Which hen is mentally responsible for the four legs, or two heads that so frequently happens in the fowl kingdom? The fault lies not with the mother, but in a misconstrued force of germination. Some element of a primary cell has become blighted and its purpose has been involuntarily defeated, hence the origin of monstrosities that mar the beauty and admiration of the human family.

Having demonstrated that it is folly to suppose that the mind of the mother marks her offspring in utero, I trust I have proven that if the sex of a new being be controlled other than by the hand of nature, must necessarily be governed through the same channel, that of the mind of the mother, and must now undergo the same scrutinizing criticisms as the impressions to which I have so freely alluded.

We have thus arrived at a gigantic phenomenon that yet belongs to the broad domain of the All-wise King and Projector of natural laws. It is here that human power and skill

should bow submissively in recognition of this physiological phenomenon, called impregnation and sex determination. It is here that in retracing our vital evolution we arrive at the brink of a mighty chasm that will ever remain unexplored by man, unless in the unforseen days there be installed another god, with new and different laws governing the animal creation. Such foreign events as this have no promise of a decree, therefore we must content ourselves by studying the present plan of our creation. It is enough to know even this, and too much to know why we were created males instead of females.

The East and the old countries are birthplaces of many valuable scientific projects; in fact, they are perfect hot-beds for sprouting new theories and flooding the early western markets with their untried fruits. They have learned to appropriate the unsophisticated American as fit subjects for trying their new products, and the amicable American, crocodile fashion, gulps down everything thrown at him, not waiting for digestion nor assimilation, but immediately proclaiming aloud, How delicious! How exquisite! How inspired are the words of the wise men of the East! Dr Schenck, of Germany, gained greater notoriety for his bold assertions along the line of sex determination than any one else, perhaps, but he was not so adroit as to establish for himself an international reputation. Like many such mushroom theories, it vanished from the sunlight of investigation, like a morning vapor before a mid-day sun. Since his public announcement that he was negotiating with the Royalties for preferred offsprings, we have heard but little from him, which is conclusive that his experiment was a failure, that his theory exploded, and his disappointment was so keenly felt that he has withdrawn from the experimental field, leaving the fragments of his air bubble to the ways of the wind. If you will follow these jack-o'-lantern theories, shining for a season in certain localities, you will find them like the "Will-o'-the Wisp," a mere phantom, floating in the fancy of the minds of men, and as incapable of materializing as the earthly spirit of an unknown departed.

We do not fail to appreciate good and useful things discovered, no matter by whom, and I believe in giving prompt credit where it is justly due, rendering aid whenever and wherever it is demanded, but we should earnestly guard the portals of our science against empirical dogmas, for it is with the utmost strenuousness that we maintain the system of medicine as a science. It is not a true science, for I believe there is but one true science and that belongs to the physical laws of nature. A true science is a specific result obtained at all times under like circumstances. Sex formation is a true science because it is the result of natural laws and as unchangeable as the Creator Himself.

No doubt this association would feel its disappointment much keener after having lavishly liberated my views on this question, if I should fail to offer some solution to this great sex problem, therefore I shall endeavor to meet the expectations inasmuch as I am literally obligated, and as far as I am practically able. I

shall not claim for anything I may say infallibility, for the utterances of men are prompted by ideas culminating from diversified minds, and as I am no different from the rest, my solution is wholly theoretical and subjected to the same criticisms and should share the same fate at your hands as those which I have attacked.

The female ovum, thought by many to be the very concentrated essence of animal creation, is but a receptacle for certain proteids necessary for primary development in the embryonic state. All animals that develop their young outside the body, and that rely on their own resources immediately after birth for sustenance, as a rule, produce large eggs. The fowl lays large eggs and the greater part of this bulk is meat for the dependent embryo. The fish and frog, however, bear features contrary to this rule, from the fact that their embryonic young subsists on elements contained in the surrounding medium. The turtle's eggs that are deposited in the sand for incubation, and the eggs of serpents, contain large quantities of this proteid matter. The human ovum, a very delicate formation of only about one one-hundred and twentieth of an inch in diameter, but sufficiently large to nourish the infinitesimal embryo until its adherent relationship with the uterus becomes well established, receiving its nourishment from the mother's blood, is one to which I shall confine myself largely.

It has been my aim to show the insignificance of the ovum in the role of creation and to establish, if possible, a greater supremacy for the spermatozoon. I am led to believe we have placed too much importance upon the function of the human ovum and paid too little attention to the male spermatozoa. I know most physiologists claim that the ovum is an inanimated substance, only waiting for fecundation by the male spermatozoon to stimulate actual life, but we must admit that the unimpregnated ovum is dormant as far as being capable of movement except in its natural route, and only then as it is transported by the physiological forces of the mucous villi. It does not seek the spermatozoa, but ripens and passes out of the body as waste material, just as the menstrual flow passes periodically, unless arrested by the embrace of the spermatozoon, when it serves the purpose for which it was intended, that of sustaining the life of an animalcule until evolved into more substantial relationship with the mother. The spermatozoon possesses all the qualifications of perfect life, capable of traveling in various directions, and along new routes in search of the ovum. Here is where it gains superiority over the ovum by being stalwart enough to move about the premises in possession of another by natural right of inheritance, preempting and appropriating to its own use, field and food for future existence. If the spermatozoa fails to meet with the ovum in the usual plane, it does not cease its search, but goes on up the line, traveling sometimes to the very primeval habitat of the ovum and there lay claim upon it with the same tenacity as if it had met it in the uterine fold It is the aggressor at all times, pushing itself to the completion of conception before losing its vitality. All this time the be-

havior of the ovum has not been influenced the least by the presence of a spermatozoon in the vicinity, but if per chance an ovum be passing out, the spermatozoon will, by its congeniality toward the ovum, seize upon it regardless of its selfish and inactive nature, everything being equal.

My object is to convey to your minds, proof of greater activity possessed by the spermatozoa over that of the ovum, that I may be enabled to trace the power of sex determination to that of the vitalized spermatozoon. There is a fixed period where this important feature of our gender is decided, and this decision has been rendered at the beginning of all fundamental plans of animal creation. The spermatozoa is the primary element of life from whence begins the development of man, and I believe the element producing sex, is molecular and is contained in the spermatozoa. In other words, the spermatozoon is either male or female, and when it unites with the ovum, the question of sex in the new being is no longer considered. If it should be male in molecular composition, the result would be a boy, and *vice versa*. When all boys are born to a mother, it is from a predominance of male spermatozoa and the same with the birth of all girls, the female germ prevails. It is providential that one or the other prevails, for the one reaching the ovum first claims the situation, and if one or more should jump the claim of another, a conflict immediately ensues and all involved become devitalized and pass out, doing away with hermaphroditic results. If the power of sex determination belonged to both, the ovum and the spermatozoa, and if two or more spermatozoa should come in contact with the ovum at the same time, there would be reason to believe that we would have a mixed sex, provided all were not of the same gender. To prevent confusion and the union of a male spermatozoon with a female ovum, thereby producing a hermaphrodite, Nature placed the power of sex decision all with one force, giving one sex an equal chance with the other for existence. Owing to this well-fixed plan of animal creation, it is absolutely impossible for both sex to truly exist in the same subject. All reported cases of hermaphrodism I believe to be freaks, or perverted sexual development, merely sexual monstrosities, and are incapable of utilizing both capacities in perpetuating species which is evidence that one or both functions are wanting.

Animal life is not spontaneous, neither is sex formation spontaneous, and in order that a fulfillment of the law of creation be manifested, it is essential at the remote origin of man, that the gender of the new being be fixed, for it would not be a complete origin, one according to nature that did not possess all the elements necessary to develop a perfect being, sexually as well as physically. The molecular element that makes bone and muscle is contained in a neucleolus and the same is true with the sexual organs, the power controlling them is found in the anatomic cell of life, they must have an equal showing and an even chance for existence along with other special and specific organs of the body, notwithstanding their slowness in making a visual manifestation. The toes are the last to

make their appearance on the pedal extremities, but the element necessary to grow the toes certainly existed all this time. So with the generative organs, though they be tardy in appearance, the power of construction is imbued with the principle that develops its inevitable kind. The power controlling sex, then, is found in the remote forces that govern the origin of the entire being. In tracing human evolution from the time we are mindful of its gender back to its earliest infancy, lands it into the plastic hands of the great Creator, and all efforts of mankind to extort this supreme power are fallible. We might as well try to convert an ox in utero into a hobby horse, all saddled and bridled, ready for some sex scientist to mount and canter about his limited field of vision and understanding as to try to change a sex into its opposite. How absurd to think about persuading a sex into something different from what it was originally intended.

After a slight digression in following out hermaphrodism, I shall resume the original status of my subject, allowing the question to arise in the minds of my hearers. If the ovum is but a concentrated particle of food to supply the infinitely small organism before it has developed sufficiently to have absorbing qualities to abstract blood from the mother's system, and that the spermatozoon really contains all primary elements of the new being, why do we have an equal resemblance of the parents in the offspring? And why do we have a mulatto child born of a white father and a negro mother? These are important questions and I am pleased to have them presented at this point of my essay. All human blood possesses the same visible and chemical characteristics, both to the eye and the microscope, no matter from what part of the body it may be taken. The same blood that makes flesh makes bone. The same blood that sustains the body forms integument giving it all the various tints and textures found through the human race. Each particular department of the body abstracts and appropriates its specific element of blood necessary to build its own structure, though differing from its adjacent compartment. Now as the blood of the mother is carried to the fœtus, the same separation and the same appropriation of blood material is going on in the child's body as that of the mother. It really becomes a counterpart of the mother, and the exuberant blood of the mother, in performing the part of reproduction, would go contrary to the law of "like producing like" if it should grow a new being different from the parental model and the one from whence it receives its only means of development. This general resemblance of the offspring to the mother is very similar to our inherited resemblance to our primeval ancestry, and is so neatly arranged as to fully counterbalance the inherited likeness of the father, consequently the even blending of the two forces give off results found in the similarity of mother and progeny.

There is one other very important feature pertaining to maternal characteristics implanted in the offspring and it is this: We have sometimes observed, in long and close companionship, a resemblance of facial

features. You can go about an assembly of the aged, and a close observer may point out with some degree of accuracy the wife or the husband of this one or that one by the similarity of facial expressions, their demeanor is so perfectly blended as to mark almost a duplicate individuality. This being true in those who have become so interwoven in life as to simulate each other, it is no less true that the fond mother, in her devotion to her babe through the developing period of childhood, imparts these same like characteristics. Imitation of habit plays a part in resemblance of being. The monkey looks more like man because he acts like men. The child learns to speak its mother tongue; it takes up all the available habits of the mother; it soon becomes imbued with all the maternal traits, all of which tend to strengthen the striking likeness of the child to that of its mother. This mutual and social relationship between mother and child is essential in duplicating character in the latter, while the anatomical and physiological r e l a t i o n s h i p, strengthened by the innate entity found in the perpetuity of all living beings, is sufficient to account for physical resemblance of mother and progeny. Such is, in a brief manner, in accordance with my personal views, the sublime method of Nature in generating the animal specie and determining their sex, and if I have but awakened an interest in the problem of sex formation sufficient to promote further investigation along this line, that we may be enabled to add another scientific truth to the role of medicine, I will feel amply rewarded for my efforts in preparing this humble essay.

THE IMPORTANCE OF DIAGNOSIS OF DISEASES OF THE RECTUM.

By Dr. Wm. H. Stauffer, St. Louis.

It is a well recognized fact that diseases of the rectum have not received that careful attention by the medical profession which their importance demands. Other portions of the body have received a greater consideration and yet are of no more importance. From time immemorial, diseases of the rectum have been in the hands of the charlatan. For this state of affairs, we are largely responsible. Every part of the body should perform its proper function. Every one is aware that perfect physical health means nothing more or less than perfect functional activity as established by nature's immutable laws. All efforts made by man to modify these functions have signally failed and, no matter what abnormal extent of tolerance may have been gained by the pleasure seeker, the epicure or the heavy drinker, their reckoning with nature must come at last, for they have reckoned without their host. No diligent student of the history of medicine can fail to discover the underlying cause for every ism or pathy with which the world has been either cursed or blessed, for, be it said to their credit, they have not lived entirely in vain. The true physician knows no bounds to his resources for knowledge and is ever ready to accept

and utilize anything and everything for the relief of human suffering. In our laudable ambition to perfect ourselves in the treatment of special organs and diseases, we too often overlook other organs and the systemic or so-called constitutional diseases. The general practitioner, as well as the specialist, must be on guard and never presume to treat a patient without a thorough examination and, if possible, a definite diagnosis. I believe the main importance in connection with medicine or surgery is a correct diagnosis of the disease. Indeed, I believe that, if the practitioner of medicine has correctly diagnosticated the affection, he is very apt to be giving the right medicine. Without exception, this will require an examination of the patient. It is strange, but it is true, that a woman will readily submit to a uterine examination, who would strenuously oppose a rectal one; and I have found many men who would suffer the inconvenience, at least, of rectal trouble for years before they would agree to be examined for it.

Be this as it may, my advice would be to refuse to treat a serious affection of the rectum unless the patient consents to your decision. Less than this would do the patient no good and would do you harm. A rectal case under your observation and treatment, that is neither benefited nor cured, is a walking advertisement against you. If you have done your full duty according to your own opinion, if the cure is not absolute, you have the comfort of your own conscience at least.

One should always have present in his office, if possible, a trained female nurse or an attendant to wait upon ladies and prepare them for examination, to adjust their clothing and assist in the administration of enemata. She should not be present, however, during the questioning of the patient, as this part of the examination should be confidential. While the speaker recognizes their usefulness and convenience, he holds that their presence, as a protection to the doctor, is an acknowledgment of weakness upon his own part and an insult to every lady who enters his apartments.

The average patient who enters the office of the general practitioner makes his own diagnosis of piles and is too often dismissed with an astringent ointment. I am not speaking of the various methods employed in making a diagnosis, but of the deplorable fact that no examination is made at all. The same man would never presume to treat any other part of our anatomy without first making a careful examination.

The pain endured by one afflicted with a fissure or hemorrhoids, to say nothing of a malignant disease of the rectum, is not exceeded by any other affliction endured by man, and, if we fail to relieve our patients, they will go where they will obtain relief, while we wait patiently for their return and our fee. The majority of diseases peculiar to the rectum and anus are very amenable to proper treatment. The amount of benefit that can be conferred by a well skilled surgeon is really remarkable. Most of the cases of cancer are not diagnosticated until it is too late to do anything but palliate, while, as you know, if treated early, as in other parts of the body, the future of our patient is

much more encouraging. It is in such cases that an early diagnosis means so much for the welfare of the unfortunate victim of this dread disease.

The foregoing facts have been prompted by my experience of the past few years. Many persons have consulted me who have been treated by general practitioners, gynecologists, neurologists, and even by oculists and aurists, who have never suggested an examination for reasons only known to themselves.

What I have said has been from the standpoint of the general practitioner and not a specialist, but a general practitioner who does not deem it beneath his dignity to treat rectal diseases.

A prominent Chicago physician, not long since, compared his windy city to our conservative, future scientific, metropolis, as the beginning is to the ending of the alimentary canal. While they continue to furnish us with meat and drink, let us demonstrate to the world that we are citizens of no mean city.

FIFTEEN CASES OF EXTRA-GENITAL CHANCRE OBSERVED IN 1900, 1901 AND 1902.

By A. H. Ohmann-Dumesnil, A. M., M. D., St. Louis.
Editor St. Louis Medical and Surgical Journal.

The subject of extra-genital chancre is one which always possesses a certain amount of interest for him who has occasion either to treat and observe cases of lues, or who reads the literature of the subject. It is not so many years ago that a case of extra-genital chancre was recorded as something almost extraordinary. Today there is hardly a medical student who has not seen several demonstrated by his professor. And yet, when we take the rank and file of medical practitioners who have served their time as hospital internes under competent teachers, we find the majority in such a mental condition that they hesitate to formulate a diagnosis when the case presents itself in their private practice. This is very easily understood when we take into consideration that they now assume a responsibility all their own, and a mistep is apt to result in the loss of a practice which is just budding. We also have the family physician who suspects the true nature of the lesion, when an extra-genital chancre is presented, and yet hesitates to pronounce himself on account of the social standing of his patient, not deeming such a thing possible, and also from the fear that he might possibly be wrong and the statement of his diagnosis would result in his losing a very worthy and profitable family. Besides, the responsible members of such family might doubt him and even suspect his motives in telling what is really the truth.

It is not the intention here to make a thorough review of the subject. The most complete and elaborate review of the subject so far published is beyond all doubt that which is contained in the classic work of L. D.

Bulkley, "Syphilis Insontium." Of course, this does not include the extra-genital chancres acquired in other but innocent ways. These latter are numerous enough, but for elaborate tables of such we must turn to French and German authors who seem to have greater facilities for their observation. It must not be forgotten that genital chancres are vastly more numerous than the extra-genital variety, which latter is frequently never seen by practitioners who observe many cases of the genital sort. To him who is a close observer and has opportunities of seeing many cases of syphilis, cases of extra-genital chancre come before him frequently enough. As the writer stated in a former paper: "A question of more than ordinary interest which arises in each one of these cases is, how did the infection occur? This at best is most difficult to answer, and many of the methods which have been published did more credit to the imaginations of the writers than as satisfactory reasons to their readers. At best these can only be surmises and inferences more ingenious than satisfactory; and it is only in a small proportion of cases that absolute certainty may be asserted in a given one. This inability to trace the source of the origin of the infection, however, detracts in no wise from the interest attaching to the peculiar site affected or the character of the lesion presented. In fact, it is the sum of these peculiarities which renders interesting a subject which, under other circumstances, might be considered commonplace."[1]

1. Twenty-five cases of Extra-genital Chancre observed in 1897, 1898 and 1899. St. Louis Medical and Surgical Journal, December, 1900.

With these few introductory remarks will be given the clinical records of fifteen cases seen in the three years succeeding the one in which twenty-five were seen. It may not be inappropriate to premise the matter by stating that the fifteen cases which will be outlined were all seen in private practice and no hospital cases are included in this record as were in the previous one. This is done for the purpose of giving a more adequate idea of what a physician is to expect in his practice.

Case 1.—A young man, aged twenty-four, a mechanic by occupation, presented himself for treatment. He was dark haired, of rather spare build, but strong and with comparatively well developed muscles. Upon interrogation he stated that he had not recently had headache or suffered from any other subjective symptoms. He stated that his last intercourse had been on the 5th of the month and that he saw a chancre for the first time on the 26th. Upon examining him I found two chancres. Upon palpation there was no pain in either. One chancre was located on the left side of the prepuce, in the balano-preputial sulcus. It was markedly indurated, this latter being of the variety known as cartilaginous. The other chancre was situated on the left side of the lower lip. It was the size of a silver ten-cent piece and pressure did not elicit pain. When, however, tobacco came in contact with it, it produced the sensation of burning. This case was interesting not only on account of the extra-genital chancre, but also because it presented a typical example of what I denominated some years ago, chancre *a distance*. This variety

I had occasion to elaborate upon some years ago.[2] No exact details were obtainable in this case beyond the fact that the patient was most probably infected by a prostitute who had mucous patches of the vagina and of the mouth.

Case 2.—A young man, aged twenty-four, occupation waiter, consulted me for a chancre on his prepuce, and in the course of the examination I found another chancre upon his right forefinger. He could give no details either in regard to the time of the incubation of the lesions or as to the probable manner in which the finger had been infected. He stated that he continually pressed the chancre with his right finger tip and then claimed that both the digital and prepeutial chancres appeared simultaneously. So that the entire history can be looked upon as incomplete and unsatisfactory. The chancres both had the cartilaginous induration and rapidly yielded to local treatment of bichloride solution applications.

Case 3.—This case was also one of double chancre in a young man, single, who was thirty years of age, and whose occupation was that of bricklayer. He confessed to me that he was of a very passionate nature, and when I first saw him he had a chancre on the upper part of the prepuce and one on the upper portion of his left upper lip. Here the chancre was large, and encroached quite markedly upon the vermillion of the lip. The induration in both chancres was marked and of the cartilaginous form. As in case 2, the submaxillary and inguinal adenitis was well marked. In fact, there could exist no doubt as to the nature of the lesions. The history was also very unsatisfactory in this case, and confrontation was impossible.

Case 4.—A young married woman of twenty-four, whose husband I was treating for syphilis, was brought to me by him. She presented a chancre of the size of a five-cent nickel piece on the mucous membrane of the lower right lip. In this case there was a more satisfactory history than in many of the others, although it was deficient in the fact that no exact dates could be given. The man, who had mucous patches of the tongue, lips and mouth, stated that he had frequently kissed his wife, and that there is no doubt that this was the cause of her infection, for his penis was free of any lesions and she presented none of her genitalia. She subsequently developed a secondary eruption in the form of a roseola, shortly followed by a small, papular syphilide, which rapidly gave way under the influence of protiodide of mercury.

Case 5.—A young unmarried woman of twenty-five, without any occupation, came to see me on account of an intractable sore throat which no one seemed to be able to treat satisfactorily. I found, upon interrogation, that she was the mistress of a man who I knew had contracted syphilis. The patient did not present any marked eruption, but complained of painful enlarged lymphatic ganglia on the right side of the neck, which interfered very much with deglutition, even of liquids. Upon examining her throat, I found a chancre upon the right side of the pharynx directly posterior to the pillar of the fauces. The chancre was about an inch long

2. Double chancre a distance, St. Louis Medical and Surgical Journal, July, 1892.

and a little less than half an inch wide. It was not sensitive to a direct touch, but such action awakened a reflex cough. The mucosa was markedly congested and the induration was very perceptible. The edges of the chancre were sharp cut and distinct and projected above the level of the mucous membrane. Under internal and local mercurial treatment rapid amelioration set in, and treatment was soon discontinued by the patient. There could be elicited no explanation from the patient in regard to the manner in which the infection occurred, and it will probably always remain unexplained.

Case 6.—This case was a male infant of nine months, whose mother was referred to me by a physician. The mother could only make the one statement, that she had observed a "sore" upon the child's buttock, and had tried some home remedies upon it without success. The same results obtained with all the methods suggested by women friends and neighbors. She then determined to consult a physician, and he, not recognizing the nature of the lesion, had the same want of success in his treatment. It was then that he referred the case to me. When presented there existed upon the right buttock a crustaceous lesion, circular in shape, about one and a half inches in diameter. There was marked induration about its periphery and at the base. It was not painful, and its general appearance suggested a chancre. The child was pale and anemic, and a general condition of malnutrition was present. A slight maculo-papular eruption could be seen upon the abdomen and chest. Under these circumstances the diagnosis of chancre was made and mercurial inunctions ordered. The child immediately began to improve; it took kindly to the bottle, and in a few months it presented the picture of health. The mother never could explain the manner in which the infection could have occurred, despite all the suggestions that were made. She herself was not syphilitic, nor was her husband, and the arm or cheek of a syphilitic bearing a lesion and coming in contact with the child's buttock was the only plausible explanation that suggested itself.

Case 7.—The patient was a young man, about twenty-four years of age, who was inclined to run after women. When referred to me by a physician, he presented a well marked chancre of the upper lip on the left side. He did not suspect the nature of his trouble until he was told what it was. No knowledge of the woman from whom it might have been contracted could be elicited from him. In fact, he claimed complete ignorance, and he had no reason for this, for he placed himself under treatment directly he was informed of the nature of his trouble. He had marked induration of the lymphatic glands of the left side of his throat and neck, and in a very short time he showed a small papular syphilide. He acknowledged to kissing, but denied having been bitten, and no other possible cause but the former could be invoked. As in the case of a large number of extra-genital chancres, it was not possible to assign any definite cause for the infection beyond a reasonable surmise, which in all probability was

the true explanation of the manner in which the infective inoculation had taken place.

Case 8.—This was a case which was most interesting. The patient, a single man of forty-five years, pleaded guilty of having taken into his mouth the tongue of a woman with whom he had sexual intercourse. At the time he presented himself he had a large, markedly indurated chancre under the undersurface of the tongue, on the right side. The lymphatic glands of that side were markedly enlarged and indurated. So great was this enlargement that the deglutition of solid food was an impossibility. At this time pressure upon the glands to the tongue elicited no pain. The patient was very actively treated with mercurials locally and internally, and for a certain length of time there was apparent improvement. After this pain of a very marked character was felt, the tongue enlarged very much and speech was an impossibility. A thorough examination revealed the fact that carcinoma had declared itself, and it ravaged the tissues in a very destructive manner. The malignant process was the precursor of the patient's death. I will not discuss the engrafting of a carcinomatous process upon syphilitic tissues in this place, but reserve it for some future paper.

Case 9.—This case was that of a physician, forty-six years of age, married, who had a lesion on the right forefinger which he had mistaken for an x-ray burn. He found it to be very intractable to treatment, and at first attributed this to the supposed nature of the lesion. As is well known, burns produced by the Roentgen ray are stubborn to the generally accepted modes of treatment for burns. The lesion which had caused him so much trouble was a rather large, fungating chancre. The induration was well marked and some pain upon pressure existed. This latter was no doubt due to the treatment which had been used, including as it did, poulticing and strong antiseptics, not mercurial in nature. When the diagnosis was announced the patient refused to accept it, as he could not recall a circumstance connected with a possible infection. And yet there was marked induration of the lymphatic ganglia of the arm and axilla. The patient felt convinced finally when a maculopustular syphilide made its appearance upon his chest, and shortly afterwards involved his arms, back and thighs. Energetic treatment prevented the appearance of any more syphilides.

Case 10.—This case was that of another physician, single, and thirty-four years old. He is enthusiastic in the practice of gynecology and has always argued in favor of digital examination in the diagnosis of the diseased uterus as against the use of the vaginal speculum. He presented himself with a well marked chancre of the right forefinger. He immediately referred this accident to a certain one of his patients whom he had examined by the digital method, and subsequently found to be syphilitic. The chancre in his case was a dry, crustaceous lesion, without pain, but persistent. The lymphatic glands of the arm and of the axilla presented a classic induration, and the patient immediately recognized the exactness of the diagnosis. A very slight

eruption appeared shortly afterward and promptly yielded to treatment.

Case 11.—This case was that of a young unmarried man of twenty-two. He was referred to me by a physician who had made a correct diagnosis. Previously to that the patient had been treated for epithelioma, the primary lesion having been mistaken for a malignant one. When seen by the writer he had a typical chancre of the upper lip, on the left side He very frankly acknowledged that he thought he had been infected by a kiss. The accompanying adenitis was marked and easily defined. At the time of examination there existed confirmatory signs in the shape of mucous patches of the buccal cavity and a slight papular syphilide of the chest. The patient readily yielded to treatment, and there was a rapid disappearance of all objective signs.

Case 12.—This case is one in which the patient could give a pretty fair history. He was a young German, not very long in this country, and without money or occupation. Being unmarried and about twenty-three years of age, he fell an easy victim to the wiles of a prostitute. He was not content with sexual intercourse, but sought to satisfy his libidinous desires still further by inserting his finger in her vagina. When examined he presented a chancre of the glans, located on the left side, and in addition a primary lesion on the right index finger, on the radial side and implicating the distal phalanx. The induration was marked and there was a fungating tendency about the lesion.

Case 13.—This was a Russian of thirty-three, a teamster by occupation. His parents were Russians and he gave a good family history. Upon being interrogated, he stated that he had the habit of introducing his finger into the vagina of a woman with whom he had frequent intercourse. The sore of which he complained first appeared at the distal joint of his right forefinger. The patient described it as a white spot which felt like a bullet set in the skin. It broke out at the second joint on the palmar surface of the finger and spread over the whole finger. There was no very marked induration of the chancre, it being of the parchment variety in the distal phalanx. That on the palmar surface had a cartilaginous induration, and the case was really one of double chancre of the finger. So far as involvement of the lymphatic glands was concerned, there was a marked induration of the right epitrochlear gland, but none of the other lymphatic ganglia. This case is sufficiently interesting to receive independent treatment in a paper especially devoted to it.

Case 14.—This was an unmarried female, eighteen years old, who is stout and physically strong. She lived at home with her parents. Her father evidently acquired syphilis, as her brother, several years her junior, had prenatal syphilis. The patient under consideraiion, as well as two older sisters, were born before the father had syphilis. They are both healthy and non-luetic. The patient under consideration, when seen, complained of headache and sore throat, as well as of an eruption. On examination there was found a chancre in the center of the upper lip, accompanied by double submaxillary ade-

nitis. A papulo-pustular eruption existed on the face, as well as on the body, arms and thighs. The other lymphatic glands which were indurated, in addition to those mentioned, were the cervical, pre-auriculars and both epitrochlear. Efforts to arrive at a clear history of the manner of infection only resulted in an inferential conclusion. By dint of questioning the avowal was made that she had been kissed on several occasions by a young man who, from the description furnished, was syphilitic.

Case 15.—The patient was a single young man of twenty-four, a Jew, who presented himself with a chancre of the upper lip, very near the center. The induration in the lesion was a marked one, although not to the extent of being cartilaginous. He stated that the woman from whom he had most probably derived the infection had been repeatedly kissed by him and complained of having a sore mouth. This would certainly be sufficient to establish the origin of the chancre. The submaxillary glands were indurated and the pre-auricular on one side. In addition to this, there existed a rather discrete small papular syphilide on the chest. The remainder of the integument was clear of any eruption. Some headache and a few slight pains in the joints existed.

ANALYSIS.

If we take all the cases which have been reported they can be easily tabulated as follows:

Chancre of lip alone	8
Chancre of lip and glans	2
Chancre of finger	1
Chancre of buttock	1
Chancre of pharynx	1
	—15

From this we find that the location of the majority of these extra-genital chancres was the lip. Another interesting circumstance in connection with this is that it was the upper lip that was involved. In fact, it seems to be the universal experience of all syphilographers to observe the large majority of extra-genital chancres on the lip. In the present small series it was always the upper lip that was the seat of the chancre

Next in order of frequency was the finger. Here, in the present list of cases, it was the right index that was involved, and in all of the cases there was not a simple, single chancre. An interesting case is that in which two chancres were found involving the finger.

In two instances unusual locations were each one the site of the primary lesion. One was the pharynx, which is comparatively unusual, but not rare. The other was that in which the buttock was the portion on which a chancre was observed. This is certainly a very unusual location, and there are but very few cases on record. Those who have devoted much time to the collection of histories of extra-genital chancres in many instances do not mention this location.

A circumstance which should be noted is that in every instance there existed corroborative signs, making the diagnosis a certain one. So many errors are liable to be made in the diagnosis of the chancre that all such evidence must be sought in order to make an expression of opinion certain and beyond all doubt. This was done in all of the cases detailed above, and cases of chancre redux were very carefully eliminated.

One very interesting point in connection with these cases is that there were found five cases of double chancre *a distance*. This is a rather uncommon condition and the finding of this variety in one-third of the total number of cases of extra-genital chancres observed is, to say the least, rather surprising. In fact, it would lead to the thought that this is a comparatively frequent occurrence. And, yet, syphilographers either omit all mention of this form, merely mention it, or have but one or two cases to briefly report. Another very unusual case given above is that of two concurrent chancres of a finger, one on the dorsal and the other on the palmar side. This form of infection has not been spoken of by writers on syphilis, to any noticeable degree.

To refer to the deontology of the cases reported, it was found that five cases were examples of syphilis insontium, or syphilis of the innocent. Two chancres of the lip were acquired innocently and were in females. Two of the finger occurred on the forefinger in physicians who were accidentally inoculated by patients. One of the buttock was in an infant who was inoculated in an unknown manner. The other ten cases were infected through sexual intercourse and were simply unexpected reminders of libidinous passion on the part of their carriers. So that we are led to the conclusion that only one-third of the cases were innocent and the remaining two-thirds were due to depravity. In a former series of twenty-five cases which I reported[3] there were 48 per cent. (12 cases), a smaller percentage than in the present.

The reporting of these cases has not been made with the intention of adding to the long list of medical curiosities, but rather to call attention to the fact that chancres not only exist in unexpected localities, but that when a case of recently developed syphilis is seen diligent search should be made for the chancre and it should be found. If the writer has succeeded in doing this, a part of his object has been attained.

3. Lve. cit.

JOURNAL

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EDITORIAL.

NO FUNDS FOR MISSOURI MEDICAL EXHIBIT.

According to the report of expenditures of the Missouri Commission, as reported in the *Republic* of July 24th, $51,212.76 is charged to the Educational Department. There is no detailed report as to the ratio assigned to the different departments of education. This much, however, is certain—that no part of the fund was assigned to medical education.

Missouri has fifteen medical colleges, with an average attendance of 2,340 students. There are 6,314 physicians in Missouri, according to the census of 1900. These physicians are an important factor in the intellectual

life of our state and they are interested in education, general as well as medical.

We observe from the distribution of expenditures that the farmers have not been neglected, the fruit growers have been looked after, the dairymaids have had $7,091.23 expended upon their department—but the physicians were refused a thousand dollars wherewith to exploit to the visitors to the Fair what Missouri is doing by way of medical education.

By the side of the exhibit which the physicians of Missouri are making and paying for out of their own pockets is the exhibit of a single medical college of Chicago which outranks it in every respect, and for which the state of Illinois is furnishing the funds.

The one potent argument with the politicians can be used at the coming election. Do not vote for a candidate for office that does not evince intelligence enough to understand that medicine and hygiene are entitled to the state's fostering care, and who does not promise to give his assistance in carrying out the demands of the profession.

METHOD OF INCREASE OF RED BLOOD CORPUSCLES.

Muscular effort (according to experiments made by Hawk) in all cases directly increase the number of globules, both red and white. The marked addition following a few minutes of exercise has stimulated investigation of the method of increase. The hypothesis, according to which the increase is due to a multiplication of cells, seems improbable when we consider the fact that a considerable increase may require only a fraction of a minute. The same reasoning seems to disprove the theory of concentration of blood due to transpiration through the skin or lungs. Hawk adopts a third hypothesis—that the increase is due to the penetration into the blood of numerous globules which, in a state of rest, remain in different parts of the body outside the blood current, or at any rate, immobilized in certain organs. The increase of globules due to exercise would, under these conditions, be only apparent. There would be no real increase. On the other hand, Hawk's experiments seem to show that muscular exercise really results in destruction of red globules, which may be noticed only after a certain time following the disappearance of the various effects—indicating an increase.

MEDICAL HISTORY.

With the July number of the JOURNAL began the publication of photographs and biographies of men who have been foremost in the world of medicine. Each issue will present two half-tones, and during the year biographical sketches of the following will appear: Andreas Vesalius, Ambroise Pare, William Harvey, John Hunter, Edward Jenner, Rudolph Virchow, Bernhard von Langenbeck, Theodor Billroth, Sir Astley Cooper, Benjamin Rush, George B. Wood, Robert Dunglison, Austin Flint, John Ray, Ephraim McDowell, S. D. Gross, J. Marion Sims, D. Hayes Agnew and Lord Lister.

THE SPIRIT AND POWER OF OUR PROFESSION.

A great many wise and practical things have been said and written about the more perfect organization of the medical profession of this country.

The spirit of organization seems to be brooding over us and the mist and chaos of four and five years ago begins to take on shape and form of a body whose spirit and power shall direct many of the policies of this government. We spend much time, money and thought upon the political questions of the day, while we neglect the more weighty matters of the health and social conditions of our country. We often complain of the helplessness of our professions to correct certain evils or to pass certain laws or to enforce those already on the statute books. Who is to blame for this? To the thoughtful and observing man, the responsibility is easily and correctly placed. We, ourselves, are to blame, and we but play the baby act when we try to place it upon the politician or anyone else. Go into any political convention, whether it is democratic or republican, in any county of this state and the chances are more than even that you will find a liberal sprinkling of doctors in it, and they are running the convention. I have been a voter for over thirty years, and live in a county that is overwhelmingly democratic, and for forty years the doctors of this county have furnished four out of five of all the chairmen of the democratic county central committee.

My county is about fifty miles long and twenty-five miles wide, and there is not a section that is six miles square but what there is a doctor in it. They go into every home in the county and they have the confidence of the people as no other class of men have. In this county, a few years ago, we had a practical illustration as to what these doctors could do by getting together. We agreed that we would elect a certain man to the legislature. When the politicians and would-be political bosses heard of our intentions, they laughed at us and said we were feeble-minded and should be taken in out of the wet. But ere the race was half run they were coming to us and in their patronizing way offering us advice as to how to win, and a little later on they came around and said if there was anything that they could do they would be glad to help us, but unfortunately for them, we had left nothing undone, and as the boys say, "our man won in a gallop." What we did in that year can be repeated in every county in this state. We are many bodies, but there should be but one spirit. In the unity of this spirit there is power. Power to cleanse our own ranks; power to utterly destroy, root and branch, charlatanism, quackery and medical fakes of all kinds. Power to pass health laws; power to create boards of health and to enforce their regulations, and thus to insure to the people of this great commonwealth a greater measure of health and happiness.

The mission of this journal is to unify this spirit and organize a society in every county in this state where there is no such ornanization, and to help those that are already organized. The county society is the unit of our organization. If the members of the county societies will assert

themselves, they can control the state and national association. This journal belongs to the affiliated medical societies of this state. You have a right to be heard in its columns. The spirit and power of our profession rests with the county societies. No stream is higher than its source. A great opportunity has come to us, full of responsibilities and possibilities. Let us arise to the occasion.

W. M.

THE MEDICAL COLLEGE.

The many sided question as to what constitutes the best medical college should interest not only the medical teacher, but the profession at large. It is assumed that every one interested in medical education desires a solution of this question, for the welfare of our profession largely rests upon its final conclusion.

A primary answer would be, that college giving the best four years' graded course of instruction, both didactic and clinical, with complete laboratory demonstrations, is the best college. A rejoinder to this is that all self-respecting colleges claim to do this. But it is claimed that all cannot be equally good. Some are lacking in equipment and teaching ability. Some colleges are too young and inexperienced. Others have grown old without the employment of modern methods, and are, therefore, effete. A fair statement in reference to these two extremes is that the enthusiasm of youth does not imply wisdom or the dignity of age alone furnish unerring judgment. It is possible that a school combining the best elements in the new and old schools would more nearly approach the ideal, for we must recognize the merit in young energy and the stability of experience that comes with age.

It might be asked what constitutes the best teaching faculty, the paid or voluntary corps of teachers? Does the paid teacher, selected solely on account of his ability without the incentive that spurs the voluntary teacher of ability to put forth his best effort, do as good work?

Has he the interest in his classes, or can he inspire that feeling of mutual interest between teachers and students which is so desirable and essential to successful teaching? It is claimed that there are too many medical colleges, that the aspirations of medical men have led to this establishment out of proportion to the demand for them. Without desiring to be in the least critical, a hearty approval of this proposition may be granted.

As a parallel to the foregoing, it is further claimed that too many medical students are turned loose upon an unoffending people each year. This is a debatable question. In the first place, vast domains of heretofore unsettled country are annually being settled by our own and immigrant population. These people must have physicians, and to them the young and vigorous doctor must go, The field is good for his development. and who can say that from just such locations there have not come some of the best practitioners this country has produced? Indeed, if he has the gray matter, is conscientious and studious, his opportunities are auspicious. The difficulties he must encounter and the obstacles he must overcome in a new country will make him strong in his

isolation, will develop his resources and make him self-reliant. These are trying times for medical colleges. In the prevailing desire to advance a standard of medical education, which all must commend, there has come an outcry for a better preliminary education on the part of the medical college matriculant. While all must applaud this demand, a judicious conservatism should be exercised. Injustice should not be done the great majority of medical colleges by an abrupt transition from present requirements of at least a high school diploma to a college or university degree as a minimum. To those who have watched the trend of our National Medical Association it must be apparent that there is a disposition to so rapidly advance the standard of entrance requirements to medical colleges as to harmfully discriminate against schools not sustained by the liberal endowment or state patronage. It is to be regretted that the representation of these latter are loudest in contending for the college degree requirement. It is not uncharitable to conclude that the sense of financial security has something to do with their excessive demands.

Instances might be pointed out where a sudden and tumultuous transition has taken place in schools recently attached to great universities. This is not mentioned so much in a spirit of criticism as to indicate a little touch of human nature, a weakness common to mortals. Added to the foregoing may be mentioned the arbitrary and often mandatory action of many state boards of health which often assume (possibly with the best intentions) to so regulate the entrance and professional requirements of students and graduates in excess of that demanded by our best colleges. That the standard should be gradually raised all must agree, but in justice to medical colleges and students this should be reached in such a way as not to be prohibitive to the financially weaker schools.

For these troubles that beset so many medical schools and the preparation for the ultimate change which is inevitable there can be but one remedy, viz., a coalescence of the smaller and unendowed medical colleges. This would result in larger classes, and the question arises, would this be best for the student? Would he get as good instruction, especially clinical, as in the smaller schools? Yes, provided the union of the several schools was perfected upon a broad and unselfish basis. Along with increased resources and equipment should come lengthened school term to at least eight and possibly nine months and a greater number of teachers in each department, making it possible to divide the students in smaller classes and bring them into a closer contact with the teacher and the clinical patient.

Then would all medical schools be self-sustaining without the necessity of the slightest tendency of commercialism. Then would arise a commendable spirit of rivalry between the endowed medical colleges, with their paid teachers, and the independent schools, with their voluntary faculties. Then may the answer come to the question "what constitutes the best medical college?" C. L. H.

COUNTY SOCIETY NOTES.

PUTNAM COUNTY MEDICAL SOCIETY.

Dr. I. F. Noel, President.
Dr. C. H. Carryer, Vice-President.
Dr. J. H. Holman, Secretary.
Dr. A. D. Ellis, Treasurer.
Dr. L. L. Gray, Delegate.

Putnam County Medical Society met July 6th, at Unionville, President I. F. Noel in the chair. Dr. W. A. Berry was elected to membership. The prosecution of the case against one J. L. McElheiney, an Osteopath, for the illegal practice of medicine, was discussed, and a motion made and carried to consult the prosecuting attorney about employing additional lawyer or lawyers to push the case. All papers were held over on account of the time consumed by the above discussion. Adjourned to meet in extra session in two weeks to take final action on the above case.

The regular meeting of the Putnam County Medical Society was held on the first Wednesday, August 3d. Minutes of preceding meeting were read and approved. The entire time of the society was occupied in devising means for prosecuting J. L. McElheiney, a so-called osteopath, for the illegal practice of medicine.

McElheiney is a registered osteopath, but there are more than twenty-five persons who are ready to make affidavit to the fact that he uses medicines either by the mouth or hypodermically. His contention is that he uses medicine not to cure, but merely to control symptoms. The Putnam County Medical Society feels that one of the duties of the state board of health should be to conduct prosecution against persons practicing medicine without a license. Since nothing is to be hoped for from that direction it seems as though at the next meeting of the State Medical Association the house of delegates should authorize the expenditure of an amount of money sufficient to prosecute these cases in any part of the state in which they may arise.

J. A. Townsend, Reporter.

PLATTE COUNTY MEDICAL SOCIETY.

Dr. A. S. Herndon, President.
Dr. R. P. Davis, Vice-President.
Dr. G. C. Coffey, Secretary,
Dr. J. A. Baldwin, Treasurer.
Dr. S. Redmond, Delegate.

The Platte County Medical Society met July 13th in the office of Dr. S. Redman, at Platte City, Dr. C. H. Chastaine in the chair.

Dr. J. W. Winn read a paper on impetigo contagiosa, in which he laid particular stress on the differential diagnosis, especially from varicella, with which it may readily be confounded by those not thoroughly versed in skin diseases. The treatment advised consists in the destruction of the autoinoculable properties of the crusts and contents of the lesions. The paper was followed by much interesting discussion.

Dr. S. Redman, delegate to the state association, made his report of the annual meeting, which was favorably received. The society adjourned to meet the first Wednesday in August.

The Platte County Medical Society met in regular monthly session at Platte City, August 3d, Dr. A. S. Herndon presiding. The minutes of the previous meeting were read and approved.

Dr. C. H. Chastaine read a paper entitled, "The Society as a Unit," in which he strongly urged the individual members to be ethical in all their dealings, and to consider well the good of the society.

Dr. R. P. Davis read a paper in which he set forth the necessity of adopting a fee table. The action of county courts in cutting down physicians' bills for county work was strongly condemned. The discussion which followed led on to the subject of collection of bills, and many interesting experiences were related.

The resignation of Dr. J. A. Baldwin as treasurer of the society was presented and accepted, the president appointing the secretary to act as treasurer until the next fiscal election.

The society adjourned to meet in Weston, Wednesday, September 7th.

DR. G. C. COFFEY, Reporter.

CASS COUNTY MEDICAL SOCIETY.

Dr. T. W. Adair, President.
Dr. R. D. Ramey, Vice-President.
Dr, J. S. Triplett, Secretary-Treasurer.
Dr. M. P. Overholser, Delegate.

The seventh quarterly meeting of the Cass County Medical Society will be held at Harrisonville, Mo., September 1st. Special efforts have been taken to make this the most interesting meeting since the organization of the society. The papers are timely, instructive and interesting. A new feature in the way of a *quiz* on some important subject for each meeting has been added to the program. The increasing interest in the scientific work is plainly evidenced at each meeting by the discussions becoming more lively, practical and instructive.

PROGRAM.

1. Paper—"What Should We Prescribe?" by R. P. Walker.

2. Paper—"Diarrhea of Children," by T. W. Adair.

3. Paper—"Choice and Administration of Anesthetics," by J. P. McCann.

4. Paper — "Cholera Infantum," by W. F. Chaffin.

5. *Quiz*, by J. S. Triplett: Subjects—Anatomy of the Lungs; Mensuration: Types of Respiration; Dyspnea; Vocal Fremitus.

The following have not announced the titles of their subjects: F. R. Morley, J. S. Brown, W. C. Palmer, A. R. Elder, H. Jerard, A. D. Farnsworth and J. S. Strother.

J. S. TRIPLETT, Reporter,

CHARITON COUNTY MEDICAL SOCIETY.

Dr. M. B. Austin, President.
Dr. Harry Tatum, Vice President.
Dr. C. A. Jennings, Secretary-Treasurer.
Dr. J. D. Brummall, Delegate.

The Chariton County Medical Society met in regular session at Salisbury, July 28, 1904, Dr. M. B. Austin presiding. The time of meeting was changed from 1 o'clock P. M. to 8:30 P. M.

Dr. Epperly, of Prairie Hill, a guest of the society, was invited to participate in the discussions. The doctor reported an interesting case of impaction with acute appendicitis. His

treatment of the case met with general approval.

At the next regular meeting, which will be held at Salisbury August 25th, Dr. McAdams, of Prairie Hill, will read a paper on "Uniform Medical Fees." Dr. Kirkpatrick, of Dalton, will also present a paper, subject to be announced.

W. L. BAKER, Reporter.

GRUNDY COUNTY MEDICAL SOCIETY.

Dr. J. A. Asher, President.
Dr. W. E. Allen, Vice-President.
Dr. W. D. Fulkerson, Secretary.

Grundy County Medical Society met at Trenton, July 19th, President Dr. J. A. Asher in the chair. Minutes of preceding meeting read and approved. There being no scientific programme, reports of interesting cases were made by different members, a free discussion following, made a very interesting and instructive meeting.

EVENETT ALLEN, Reporter.

ST. LOUIS COUNTY MEDICAL SOCIETY.

Dr. R. D. Moore, President
Dr. Howard Carter, Vice-President.
Dr. H. G. Wyer, Secretary.
Dr. N. N. Jensen, Treasurer.
Dr. W. H. Wyer, Delegate.

The last meeting of the St. Louis County Medical Society was held at Clayton, June 8th, at 2 o'clock when it was voted to omit the July and August meeting. Dr. A. H. Meisenbach, of St. Louis, gave the society a very timely talk on "Fourth of July Injuries." Lunch was served after adjournment. The next meeting is scheduled for Wednesday, September 14th, at 2 P. M.

H. G. WYER, Reporter.

RAY COUNTY MEDICAL SOCIETY.

Dr. Chas. B. Shotwell, President.
Dr. J. M. Griffin, First Vice-President.
Dr. E. H. Musson, Second Vice-President.
Dr. L. D. Greene, Secretary.
Dr. E. T. McGaw, Corresponding Secretary.
Dr. C. C. Crowley, Treasurer.

Ray County Medical Society met in regular session at Richmond, July 20th, to elect officers for the ensuing year. The election resulted as follows: Chas. B. Shotwell, President; J. M. Griffin, First Vice-President; E. H. Musson, Second Vice-President; L. D. Greene, Secretary; E. T. McGaw, Corresponding Secretary; C. C. Crowley, Treasurer.

CLAY COUNTY MEDICAL SOCIETY.

Dr. L. J. Jones, President.
Dr. John J. Rice, Vice-President.
Dr. F. H. Matthews, Secretary.
Dr. J. H. Rothwell, Treasurer.
Dr. H. Rowell, Delegate.

The Clay County Medical Society held a very interesting session at Excelsior Springs, Monday, July 25, 1904, with Dr. John J. Rice, Vice-President, in the chair. The following members were present: Drs. T. N. Bogart, Ernest Lowrey, W. S. Wallace, Frank Lightfoot, J. T. Rice, J. M. Allen, F. H. Matthews, C. Atkins, A. B. Ralph, W. L. Wysong, H. A. Cox, J. J. Rice, Geo. McCullouch. This meeting was held in Excelsior Springs at the invitation of its members residing there and the society was well entertained by them at the Excelsior Club.

The following programme was presented, each paper being freely discussed: "Dysentery," Dr. John J. Rice; "Antiseptic Treatment of Typhoid Fever," Dr. Frank Lightfoot; "Symposium on Chronic Kidney Disease," opened by Dr. J. M. Allen; "Differential Diagnosis and Treatment of Organic Heart Disease," by Dr. C. Atkins; "Ilio Colitis, by Dr. W. S. Wallace; "Report of Case of Resection of Hip Joint," by Dr. Ernest Lowrey; "Chronic Bright's Disease," by Dr. T. N. Bogart.

The Committee of Arrangements to provide for entertainment of the State Medical Society, which meets in Excelsior Springs in 1905 met and organized as follows: Dr. T. N. Bogart, Chairman; Dr. J. T. Rice, Secretary. The committee is composed of the following members of the Clay County Medical Society: Drs. L. J. Jones, J. M. Allen, J. H. Rothwell, F. H. Matthews, C. Atkins, W. L. Wysong, John J. Rice, J. T. Rice, Ernest Lowrey, T. N. Bogart.

The Clay County Medical Society was organized in 1854, the membership includes nearly the entire regular profession of the county, the meetings which are held regularly in Liberty on the last Monday in each month are characterized by a large attendance. They are interesting and original.

F. H. MATTHEWS,
Reporter.

SHELBY COUNTY MEDICAL SOCIETY.

Dr. Wm. Carson, President.
Dr. J. D. Smith, Vice-President.
Dr. L. W. Dallas, Secretary-Treasurer.
Dr. Wm. Carson, Delegate.

The Shelby County Medical Society met in the office of Dr. H. C. Vaughan, at Shelbina. Owing to the absence of the president Dr. Vaughan presided. The subject of the evening was the "Hawley Lymph Treatment." There were no direct reports of cases so treated by any of the physicians present, but after the fullest discussion it was the unanimous opinion of those present that the "lymph" is little short of a fake.

It was argued that the manner of its preparation is not known by those who use it.

None of the physicians who took part in the discussion had ever known of any permanent results following its use.

The cost is largely beyond the reach of the average man.

Some present knew of brother physicians who had used it and had been disappointed in its results, or, rather, lack of good results.

It was considered impossible to so prepare a fluid of that kind that it would be certainly assimilated as a tonic or food.

It was also thought that the few cases of temporary improvement which had been reported were psychological rather than physiological. We will report further as those of the society who have used it bring in reports.

At our next meeting the committee which was appointed to consider the advisability of adopting a county fee bill will make its report. The discussion of this subject and the report of cases will probably occupy the time.

Our next meeting will be held in the office of Dr. H. C. Vaughan, Shelbina, on September 22 (Thursday), at 8 o'clock P. M.

L. W. DALLAS, Reporter.

ABSTRACTS.

Recent Researches in Cancer.—By Dr. James Miller (*Birmingham Medical Review*, June, 1904, p. 379).—For some time past investigators in this field have been directing their attention chiefly to the question as to whether some living organism is or is not the cause of cancer. Starting from analogy with diseases such as coccidiosis in the rabbit, where we have the presence of one of the sporozoa giving rise to the formation of papillomatous growths within dilated bile ducts, investigators have attempted to show that similar organisms are present in cancerous cells. Thus, sporozoa of various kinds, yeasts, psorosperms and bacteria have all been described as occurring within the cancer cell. Many of these observations have been proved to have been incorrect.

Stiles (*Liverpool Med.-Chir. Jour.*, October, 1902) has shown that at least some of these bodies are simply cell degenerations. So that at the present time one may say that there is no one organism that is even probably causally related to the cancerous process.

Progress has, however, been made in other directions. It has been shown that certain malignant tumors are definitely inoculable. Jensen (*Cbl. f. Bact.*, 1904, p. 32) has found such a tumor in white mice. He inoculated minute portions of this tumor, which was an adeno-carcinoma, into the subcutaneous tissue of a large number of other white mice. About 834 have in this way been inoculated; of these, 232 died in the course of the first fourteen days; of the others, 249 developed tumors which reached in some cases a very large size. The method of inoculation was either to mince a small portion of the tumor in a mortar, suspend it in normal saline solution, and then inject it, or simply to insert a piece of the tumor under the skin.

The course of the disease following injection was practically always the same. The portion of tumor introduced disappeared in a few days' time. After about fourteen days a nodule could be felt. This grew in the space of two or three weeks to the size of a pea or even of a bean. Ultimately, after some months, the tumor might be the size of the mouse itself. In some cases the presence of the tumor appeared to produce little effect, in other cases there was loss of weight.

The tumor was also inoculated in the grey house mouse. At first only an occasional animal became affected, but subsequently inoculation from one of these animals produced the tumor more easily.

A series of observations were made in order to establish the fate of the piece of tumor introduced—whether it itself grew, or whether it incited tissues around it to grow. There was no difficulty in demonstrating that the greater part of the piece underwent progressive destruction, but that groups of cells remained which, after a week or so, began to grow and multiply again, and that these cells reproduced the structure of the original tumor. Nothing in the least suggestive of any form of parasite was found. These results have been confirmed by Bashford and Murray (*Lancet*, February 13th).

It might have been thought that the careful observation of cancer cells

during the last few decades, under high powers of the microscope, would have discovered all that there was to find out as regards the minute structure of these cells, and their behavior when undergoing division. But that this is not the case, the discoveries of the last few months have shown.

When a cell undergoes indirect or mitotic division, its nucleus passes through a series of definite and fairly constant changes. The chromatin substance of the nucleus increases in staining power, it loses its net-like arrangement, and finally gives rise to a definite number of separate, intensely staining bodies, known as chromosomes. These chromosomes vary in number in different species of plants and animals. In man the number is stated to be 32; in the mouse, the trout and the lily it is 24; in the shark 36, and so on.

While this differentiation of the chromatin into chromosomes is going on, what is known as the amphiaster is formed. This consists of a series of fibres forming a spindle radiating from two bodies called centrosomes. At first the chromosomes group themselves in a plane passing through the equator of the spindle, thus forming what is known as the equatorial plate. The next change is that each chromosome splits lengthwise into exactly similar halves. These halves separate and pass to opposite poles of the spindle, and each group of these daughter-chromosomes gives rise to a daughter-nucleus. Subsequently the protoplasm of the cell divides, and thus two new cells arise.

The above series of changes was found to hold good for the vast majority of the cells of an animal when undergoing mitotic division. It was, however, noticed that the conjugating germ cells—the spermatozoon and the ovum—each contained one half the number of chromosomes characteristic of the body cells. On further examination it was found that this reduction in the number of chromosomes took place in animals during the course of the last two cell divisions previous to the formation of the true germ cells of gametes. Each of the four cells thus formed during the period of preparation for fertilization or maturation, as it is called, has only half the usual number of chromosomes. In the female only one of the four cells goes to form the ovum proper; the other three form what are known as the polar bodies, which are thrown out. In the male all four become functional spermatozoa. The process of reduction is apparently a provision to keep the number of chromosomes characteristic for any given species constant, because if it did not occur the number would be doubled at each subsequent fertilization.

These series of mitotic divisions which occur during the process of maturation, and which are characterized by this reduction to half the usual number of chromosomes, are known as heterotype mitoses, whereas the ordinary forms of nuclear division which occur when all the other cells of the body multiply are known as somatic or homotype mitoses.

The reduction in number is apparently affected by a fusion together of chromosomes, and the somatic type is re-established by the chromo-

somes of the male and female gametes not fusing with each other, but remaining separate.

There is, however, a further difference between the homotype and the heterotype forms of mitotic division; in the former the chromosomes are either rod-shaped or V-shaped; in the latter they are in the form of rings or loops, so that is possible to state whether a given mitotic figure is homotype or heterotype by the appearance of its chromosomes as well as by their number,

Now, while what has been stated holds good for plants as well as animals, certain further facts were observed by botanists which throw light upon the meaning of the whole process.

Strasburger found that in the ferns all the cells of the prothallus or sexual generation; from the original spore-mother cell onwards to the formation of the germ cells, have only one-half the number of chromosomes found in the fern plant or asexual generation; in osmunda, for instance, the number is twelve instead of twenty-four. He found, further, that in the angiosperms the two maturation divisions are in both sexes followed by one or more divisions in which the reduced number presists. From this he concluded that the cells thus formed represent the vestiges of the sexual generation in the higher cryptogams, analogous to the prothallus of the ferns, that, in other words, an alternation of generations occurs in the higher plants as well as in the lower, although the sexual generation or gametophyte remains within the asexual or sporophyte. Strasburger further suggested that this idea might be applied to the animal kingdom, "that the four cells arising by the division of the oogonium (egg cell and three polar bodies) represent the remains of a separate generation, now a mere remnant in the body in somewhat the same manner that the rudimentary prothallus of angiosperns is included in tbe embryo sac." (Wilson, "The Cell.")

A further point of interest is that Boveri, confirmed by Brauer, has shown that in parthenogenesis the second polar body plays the part of the sperm nucleus, and re-establishes the somatic number of chromosomes (Ibid.)

But to return to the question of cancer. In a paper read before the Royal Society on December 10, 1903, Farmer describes the results of researches carried out by him in collaboration with Messrs. Moore and Walker. These investigators observed that in malignant growths, in the cancer cells which are undergoing division, both the homotype and heterotype, mitoses might be seen. Near the margin of actively-growing malignant tumors, such as epitheliomata, the nuclei which are dividing usually exhibit mitosis typical of somatic cells (homotype). Also some abnormal forms of mitosis may be seen —*e. g.*, an excessive number of chromosomes, here and there pluripolar figures, or even absence of true mitosis and division without differentiation of the chromatin of the nucleus into chromosomes. "But in spite of these facts, the heterotype divisions can be recognized with certainty in every malignant growth so far examined, and it is precisely similar in character

to the normal heterotype that occurs in the sexually-reproductive cell series. The same peculiarities in the early differentiation of the chromosomes culminating in the production of rings, loops, etc., the same reduction in the number, and the same transverse division of each one when attached to the spindle, reappear in these cells with the greatest uniformity." (*Farmer*, *Nature*, February 14, 1903).

This occurrence of heterotype mitosis seems to be confined to tumors of a malignant character. It has not been observed in any growth of a benign nature, nor has it been seen in the cell divisions which occur in inflammation and other pathological processes. According to the authors we have in this a means of distinguishing microscopically between simple and malignant tumors.

Bashford and Murray, in a paper communicated to the Royal Society by Rose Bradford, on January 21 (see *Lancet*, February 13, 1904), confirm Farmer's results. These authors have further investigated the question as to how far similar phenomena are characteristic of the malignant new growths occurring in animals. Their results with tumors from the trout, mouse and dog have been completely in accord with those of Farmer, Moore and Walker. "In the columnar cell carcinoma of the trout the phenomena were especially distinct, the small number of chromosomes, the striking contrast between the long, slender chromosomes of the somatic mitoses, and the rings of the heterotype division being of diagramatic clearness. Homotype mitoses occurred, but were few in number" (*Lancet*, January 13).

Now arises the question: What is the meaning of these peculiar forms of nuclear division as they occur in malignant growths? Their meaning, as they occur in the life cycle of the animal is still uncertain, therefore one can only theorize on the question.

Farmer gives his conclusions thus: "Just as the true gametes (sexual cells) may fuse, so, too, cases of nuclear fusion are not very uncommon in the post-heterotype cells of malignant growths. Fusion figures strongly recall instances of normal fertilization." It is not urged that the cancer cells are functionally active sexual elements, but rather that they are homologues with such. It has, therefore, been proposed to express this idea by applying the term gametoid to them (*Nature*, February 14th).

Farmer's suggestion is, therefore, that, as a result of the heterotype mitosis of cancer cells, new cells arise which may, by fusion with other similar cells become in a sense fertilized, their subsequent nuclear divisions being ordinary homotype or somatic forms. This reminds one somewhat of what is described as occurring in parthenogenesis.

Bashford and Murray conclude thus: "The cells which have undergone the reducing division are not responsible for the active invasion of the surrounding tissues, nor for the production of metastases; the cells dividing somatically are responsible for both. The number of heterotype mitoses may not stand in any relation to the degree of malignancy, and their absence is only presumptive evidence

of the benign character of the tumor. We postulate nothing as to the future of the cells which have undergone the reducing division, though we believe the latter to be a terminal phase in the life cycle of cancer cells, as it is in the history of sexual cells in animals. The local origin and the expansive and infiltrating growth of cancer in its relation to surrounding tissues, while respecting its own proper elements, is the criterion of its malignancy. This stamps it as belonging to a new cycle comparable in its entirety to the whole organism, which is invading, rather than to any one of its tissues, reproductive or otherwise" (note to report in *Lancet*.)

In this state of uncertainty one must leave the subject at present, but, although it has not led to any practical results as yet, the gametoid theory has given to cancer research a new stimulus, and one which it much needed, in a fresh direction.

Exposure to Flame Does Not Disinfect Surgical Instruments.—A report recently presented to the Societe de Chirurgie de Lyon (*La Presse Medicale*, April 2, 1904) shows that the exposure of surgical instruments to burning alcohol, a much-vaunted method of obtaining the antisepsis of cutting instruments, is a failure. The experimenters placed in an enamelled basin virulent cultures (staphylococci, bacteria of charbon, bacilli of tetanus) and covered them with alcohol. The alcohol was lighted and the microbes exposed to the flame, but they were not destroyed, because, when they were afterwards sown, fine cultures were obtained. A similar result was obtained by Drs. Berard and Lumiere, who, instead of exposing the cultures to burning alcohol, placed them in direct contact with a Bunsen burner. Another circumstance which particularly shows the inefficaciousness of sterilization by flame is that the micro-organisms resist the action of fire not only when they are protected by a layer of dried blood or pus, but also in cases in which they are directly exposed to flame without being protected by an organic coagulum. Hence, one can readily understand that in exposing to burning alcohol a a hypodermic needle, which may contain saline or organic concretions, the resulting asepsis may be of a very imperfect character.—*Canadian Journal of Medicine and Surgery.*

Catgut, Claudius Method of Sterilizing.—Giannettasio (*Gazzetta degli Ospedalie delle Cliniche*, February 7, 1904) recommends the method of sterilizing catgut which was recently introduced by Claudius, of Copenhagen. This method has been used with success in a large number of operations by Maiglini and by Dalla Rosa, as well as by other surgeons. The strands of commercial catgut are wound in the usual way, loosely upon glass spools, and are immersed in the the following solution: Iodine, 1 gramme; potassium iodide, 1 gramme; stirile distilled water, 100 grammes. This solution is kept in wide-mouthed bottles with glass stoppers, which can be boiled or sterilized by steam. The catgut is left in this solution for eight or ten days, during which time the receptacles must be carefully stopped to prevent evaporation of iodine. At the end of this time the catgut is ready for use. The spools are taken

out, when needed, by means of long forceps, and the excess of iodine is wiped off from the catgut by means of sterilized gauze. The catgut is then of a lustrous black color, and has all the properties of silk, being elastic, plastic and tied with great facility. The strength of this catgut is such that operations requiring commonly the larger numbers (from 3 to 5) may be performed with relatively small numbers (from 0 to 2). Catgut thus prepared is less quickly absorbed than the ordinary catgut, and is very useful for skin suture, in which the antiseptic action of the iodine guarantees against stitch abscess. The writer prefers to remove the excess of iodine from this catgut, before using it, by immersing it in an antiseptic solution.—*Monthly Cyclopædia*, July, 1904.

Some Recent Observations Concerning Bacillary Dysentery.—In the history of epidemic diseases there is much said about dysentery, both in times of peace and times of war—especially, of course, in the latter. Naturally, it is difficult to tell at this time what special form of dysentery it may have concerned from time to time, although there is much to indicate that in many, if not in most instances, it probably was what we now understand as bacillary dysentery. While much further investigation is necessary before the etiology of all dysenteric diseases are fully understood, yet the definite recognition as the result of modern etiologic investigation of bacillary dysentery makes it possible to carry on etiologic and epidemiologic studies with greater precision and penetration than heretofore. Thus, Conradi's recent study of what he regards as a contact epidemic in Metz, in Alsace-Lorraine, appears to bring to light points of great interest in regard to the genesis and history of dysentery. In the course of two months there appeared in Metz and vicinity seventy cases of a mild form of bacillary dysentery. There were only three deaths. Conradi examined sixty cases bacteriologically, and in the feces of fifty-six he demonstrated the presence of virulent bacilli of the Shiga-Kruse type, which were agglutinatad by immune dysenteric serum. He could find no bacilli in the blood or urine of these patients. In the clumps of bloody mucus of the early cases the bacilli were often present in pure culture; in older cases it was necessary to carefully wash the masses of mucus before cultures were made from their interior. Conradi succeeded in recovering bacilli from the feces in twenty-seven old cases, in the second to the fourth week after the attack, cases which, without the result of the examination of the feces, would have been regarded as healthy and free from all danger. Hence dysenteric patients may remain infective for one to four weeks, and perhaps longer, after an attack. Conradi also found dysenteric bacilli in the feces of five healthy children in Metz. These facts give us some idea of the manner in which the disease may be conveyed, and also of the difficulties in the way of its control. Anent this phase of the matter it is noteworthy that extensive epidemics of dysentery have been imported by the return home, for instance, of sailors with dysentery. An epidemic in Norway in 1859 has been traced

definitely to the return of a sailor who had been treated for dysentery in Liverpool, The disease spread from the home of this sailor and attacked in all 3,992 persons, of whom 621 died (15.6 per cent. mortality).

Conradi regards the epidemic in Metz as a "contact epidemic," because the disease occurred especially in the crowded homes of the poor, in which the sanitary arrangements were very primitive. Often there were several cases in the same house, the disease beginning in children and later attacking adults,

This Metz epidemic is interesting also from the historical point of view, because it appears to be the last outbreak of a long series which can be followed for some fifteen hundred years. These epidemics about Metz have been made the subject of special study by Marechal and Dideen, who describe district outbreaks in 1536, 1539, 1552, 1621, 1770, 1783, 1792, 1835, 1844 and 1870. During the siege of Metz in 1870 there developed, from August to October, 19,135 cases of dysentery in the besieging (German) army and 3,500 cases in the besieged. Since then sporadic cases have occurred from time to time. There was an epidemic of dysentery in Metz again in 1888. Under these circumstances one would expect the influences of immunity to make themselves felt, and Conradi believes that this is evident from the fact that of the seventy persons concerned in the last outbreak, those over twenty-five years of age were immigrants, not a single aboriginal inhabitant older than twenty-five being attacked. Certainly this adds force to the natural inference that the Metz epidemics have been outbreaks of the same disease.—Editorial *Journ. A. M. A.*

Hay Fever. Treatment of.—E. Fick (*Therapeutische Monatshefte*, April, 1904) deals with two methods of treating hay fever: first, by means of Dunbar's antitoxin, and, second, by his own method by employing aristol. Dunbar's treatment is based on the assumption that all hay fever is due to the effect of the toxins of grass pollen. The author considers that Dunbar starts on a false premise. His experiments with pollen introduced into the nose of persons and producing attacks of hay fever in those who had had this disease before, but not in others, is open to criticism, since the amount of pollen introduced was enormous as compared with the number of pollen which can be gathered in the air under the most favorable circumstances. Next, Dunbar refers the eye symptoms to the direct action of the pollen on the conjunctiva. Mohr has recently proved that by protecting the nose by means of a fine filter the attacks keep off altogether and no eye symptoms take place. It therefore follows that some other cause must act in producing the eye symptoms. The writer's experience teaches that other things besides grass pollen can produce hay fever. For example, some people get an attack of this malady as soon as they come into contact with blossoms of the limetree or of roses and many others, while the so-called autumnal fever is generally accepted as being due to the blossoms of the artemisia absinthium,

Fick considers that the antitoxin, which, according to Dunbar, produces a short-lived immunity, does not and

cannot have any action at all. In the second part of his paper he deals with his theory of the etiology of hay fever. To start with, the patient is always neurasthenic. The attacks themselves are directly caused by the action of some agent, of which grass pollen is the most common, but by no means the only one. The nasal symptoms are the direct effects, and the eye symptoms are reflex symptoms. The writer denies that the nasal symptoms are due to vasomotor disturbances, and shows that irritation of the nerve-endings of the trigeminal causes a hypersecretion. The hypersection in the case of hay fever is localized in the antrum of Highmore, and the fluid finds its way into the middle nasal fossa naturally. The writer states that he has found in aristol a means of curing all forms of nervous coryza, including hay fever, when it is applied locally to the affected part. He is able to pass a canula, which is very thin and curved in correspondence to the lower turbinated bone, into the maxillary antrum in about 95 per cent. of all cases. Through this canula he blows the aristol powder into the antrum, and finds that as a rule, this need only be done six or seven times to produce a complete effect. The powder is applied every day for three days, after which time the attacks become much less frequent and milder, and often stop altogether. When they recur, the insufflation is repeated.—*Monthly Cyclopœdia*, July, 1904.

Ascites Following Cirrhosis of the Liver, Talma Operation For. — The principal cause of ascites in cirrhosis of the liver is the obstruction to the portal circulation. The percentage of cures or improvements following the operation is about 49.08 per cent. The operation has been of benefit in cases of hypertrophic cirrhosis without ascites, and promises some hope in cases of ascites, due to cardiac disease. For the success of the operation it is necessary that a sufficient number of normal liver cells be present. The operation should be performed early in the disease, in anticipation of ascites, before serious complications have taken place. Simple scarification of the omentum and a corresponding area on the parietal peritoneum is sufficient to secure success. Scarification of liver, gall-bladder and spleen is not essential.

The dietetic treatment of the patient should be continued after the operation, and alcohol in every form strictly avoided in the hope of stopping the destruction of liver cells and the formation of cicatricial tissue.—*Monthly Cyclopœdia*, July. 1904.

Has Influenza Been a Causative Factor in the Increase of Appendicitis? — P. Margel, Atlantic City (*Jour. A. M. A.*, July 30, 1904) addressed uniform inquiries to several surgeons, and received the following replies.

PHILADELPHIA, May 3, 1904.

Replying to your query, "Has influenza been a causative factor in the increase of appendicitis?" would state that, in my view, an affirmative answer is demanded by the facts. There is evidence to indicate that influenza and other infectious processes may invite appendicitis.

In a paper embodying a statistical study of influenza ("The Philadelphia Hospital Reports," Voll. III,

1896, by the writer), it was shown that this disease increases the bodily susceptibility to typhoid fever, and more particularly pneumonia. In the same article the fact was illustrated by statistical evidence that influenza diminishes receptivity of the body to malarial infection.

It is doubtless true that infection with a specific microbe may be favored by the recent occurrence of an infectious disease due to some other organism; per contra, the occurrence of an infecting disease may not only establish immunity from the disease itself (*e. g.*, measles and scarlatina), but also lessen or even destroy the receptivity to certain other diseases of the the same class.

Judging from personal experience and observation, I am persuaded that attacks of influenza are sometimes complicated with or followed by appendicitis, and hence that an etiologic connection of considerable significance between these two important, acute, infectious processes will be shown, by more extended observations, to exist.

On the other hand, there is much danger of confusing the abdominal symptoms of influenza with appendicitis. I have sometimes observed both pain and tenderness in the appendicular region in the course of otherwise typical influenza. Instances of this sort, however, are not to be regarded as being complicated with appendicitis; it requires the presence of localized resistance to render the diagnosis of appendicitis even reasonably certain. I have, however, met several cases in my experience in which influenza appeared to be the cause (although at times a somewhat uncertain one) of acute appendicitis. I would say that in all cases of influenza the diagnosis of a complicating appendicitis must be made with due caution and reserve.

Very sincerely yours,

J. M. ANDERS.

CHICAGO, ILL., May 4, 1904.

In answer to your letter of the 2d inst., I am obliged to say that I have never seen a case of appendicitis which led me to believe that influenza had been a causative factor as related to it. Influenza has been so common in our country since 1889 that almost all people have suffered from the disease at some time during that period, but as stated above, I cannot recall any case in which appendicitis and influenza were in any way related.

FRANK BILLINGS.

PHILADELPHIA, May 3, 1904.

In my opinion, influenza has been an important etiologic factor in appendicitis.

JUDSON DALAND.

PHILADELPHIA, May 3, 1904.

In reply to your note of May 2d, let me state that I have not noticed any relationship between influenza and appendicitis.

HOBART A. HARE.

PHILADELPHIA, May 4, 1904.

Only as influenza knocks down the resisting power of the individual can one realize its causal agency in the production of appendicitis. I have no exact data to give. I have no reason to think from my experience that the Pfeiffer bacillus has been productive of appendicitis in any of the large number of cases that I have seen.

J. H. MUSSER.

BALTIMORE, May 4, 1904.

I have no facts which would lead me to suppose that influenza has been a causative factor in the increase of appendicitis. I should say it has not been the case here, where we have not suffered to an extreme degree from the disease.

W. OSLER.

BUFFALO, N. Y., May 5, 1904.

I believe that influenza has been a causative agent in producing appendicitis, for the reasons that it is an important factor in lowering the general resisting power of the economy; that it has been prone to involve the accessory cavities of the respiratory tract, and by analogy should affect

those of the digestive tract; that in point of fact, tenderness over the region of the appendix is distinctly observed in a proportion of cases of intestinal influenza; and, finally, that following an epidemic of influenza clinicians believethat the proportion of cases of appendicitis has been larger. I am aware that this evidence is not beyond question, but I have none more positive to offer.

CHAS. G. STOCKTON.

PHILADELPHIA, May 5, 1904.

There is no doubt in my mind that influenza being a causative factor of catarrhal conditions in general, during epidemics of the same appendicitis is more viable.

JOHN B. DEAVER.

PHILADELPHIA, May 3, 1904.

I have a very strong conviction that the prevailing influenza of the last few years has been a decided factor in the increase of appendicitis, especially of the catarrhal form.

W. W. KEEN.

ROCHESTER, Minn., May 3, 1904.

It is a new idea to us, and I can only say that I have not noticed that appendicitis was more noticeable during the influenza season.

W. J. MAYO.

CHICAGO, May 4, 1904.

In answer to your inquiry, I would say that I have encountered a considerable number of mild appendicitis cases which have appeared within a week after the beginning of a severe influenza, and I had considered this condition as a cause of the disease.

A. J. OCHSNER.

NEW YORK CITY, May 3, 1904.

In answer to your question, "Is influenza a causative factor in the increase of appendicitis?" I would answer: In view of the fact that influenza diminishes the normal resistance to septic infection, it must of necessity increase the dangers of infection from the appendix.

JOHN A. WYETH.

NEWS ITEMS.

Rockefeller has provided a fund of $1,000,000 for the purpose of studying the causes, prevention and treatment of disease.

Dr. John Punton, superintendent of the Punton Sanitarium at Kansas City, Mo., is adding a large addition to the Sanitarium building.

The next annual meeting of the American Medical Association will be held in Portland July 11 to 14, 1905. This date will admit of many doctors spending their vacation next summer on the Pacific coast. The attendance from the East may not be so large as it was at Atlantic City, but all other sections of the country will be well represented.

The Association of Military Surgeons of the United States will hold an international congress of military surgeons in the Hall of Congresses on the Louisiana Purchase Exposition grounds on the mornings of October 10th to 15th inclusive, 1904. The members of the Missouri State Medical Association are cordially invited to attend the sessions of the congress and to participate in its work.

Andrew Carnegie has given $10,000,000 for the purpose of founding an institution for research on the

broadest and most liberal lines. A board of directors has been appointed and a year has been spent in studying the lines of work thought most desirable. The main objects are to promote individual research and to find the exceptional man. Research is now being made in anthropology and archæology in Central Asia, Nubia, Babylon and Assyria.

The American Roentgen Ray Society meets in St. Louis on the 9th, 10th, 12th and 13th of September at the Louisiana building. The profession generally is invited to attend. Dr. Joseph Grindon is chairman of the local committee.

American International Congress on Tuberculosis.—To be held October 3, 4 and 5, 1904, under the auspices of the Universal Exposition, St. Louis, 1904, the American Congress on Tuberculosis and the Medico-Legal Society of New York. By Clark Bell, Esq., LL. D., chairman of the committee on organization appointed by the management of the Universal Exposition, St. Louis, 1904, president of the Medico-Legal Society.

We are unable to print this paper of Mr. Clark Bell, chairman of the committee on organization, for want of space, but print an abstract of it, and reserve a more complete statement for our October number, which will be in the hands of our subscribers at the end of September and before the session of the congress. We quote: "American Congress on Tuberculosis was organized February 22, 1900, at the city of New York, under the auspices of the Medico-Legal Society of New York. It was composed of lawyers, physicians, scientists, governors of states, and was open to all professions and the intelligent laity."

The board of executive officers applied to the government of the United States to lend its influence, sanction and aid to the success of the congress, and requested that the invitations to send delegates from foreign governments be sent by the American government through its diplomatic corps.

Through the courtesy and broad statesmanship of Hon. John Hay, American Secretary of State, one of the honorary presidents of the congress and honorary member of the Medico-Legal Society, the invitations from the officers of the American Congress on Tuberculosis were sent by the American State Department to all foreign governments within the Western Hemisphere, being limited to the continents of North and South America, and the colonial and other governments in American waters and adjacent to the American continents.

The management of the Universal Exposition learning of the friendly and sympathetic action of the government of the United States applied to the management of the congress and asked that the congress be held under the auspices of the St. Louis Exposition and proposed to name a committee on organization and place the congress on its list of international congresses.

We have not space for the list of officers. The congress will be held in Convention Hall, and a large influential meeting is assured.

BIOGRAPHICAL SKETCHES.

CORNELIUS CELSUS.

Cornelius Celsus, born in Rome about the time of Christ, was the most celebrated author for a number of centuries. A contemporary of the greatest philosophers, poets, and savants of Rome during its most brilliant period, he studied rhetoric, philosophy, economics, the art of war, and medicine, in which latter capacity he was and is best known. He did but little original writing, contenting himself mostly with a commentary upon the works of others, especially of Hippocrates. Those of his writings which we have pertain mostly to the therapeutics of curable diseases. His views are seldom mentioned by subsequent writers, as he was totally supplanted by Galen. He died about the middle of the first century after Christ, the exact date of his death being unknown.

ANDREAS VERSALIUS.

The true reformer in anatomy, a most enthusiastic and persistent worker, was Andreas Versalius, born at Brussels in 1514, of a family already illustrious in medicine. During his stay at the University of Louvain his leisure moments were spent in dissecting small animals. He carried off by night from an execution place near Louvain, bones from which the soft parts had been cleaned away by ravenous birds, thus securing his first skeleton. Attracted by the fame of Sylvius, he afterward went to Paris to become his pupil. At the age of twenty he coached fellow students in anatomy; at twenty-two he was made professor of anatomy at Padua by the senate of Venice; at twenty-nine he issued his great work on anatomy. The following year he was called by Charles V to the court of Madrid, He died in 1564.

MEETINGS OF COUNTY MEDICAL SOCIETIES.

The Secretary of the County Society will please furnish the Secretary of the State Society the dates of the Meetings of his County Society.

County.	Date of Meeting.
Atchison	Quarterly. January, April, July, October.
Audrian	Monthly. First Monday.
Bates	
Boone	Monthly. First Monday.
Buchanan	Bi-monthly. Frist and Third Friday, except July and August.
Butler	
Caldwell	Quarterly. July, October, January, April.
Callaway	Monthly. Second Thursday.
Camden	Quarterly. January, April, July, October.
Carroll	
Cass	Quarterly. First Tuesday of March, June, Sept., Dec.
Charitor	Monthly. Last Thursday.
Clark	Subject to the call of the President.
Clay	Monthly. Last Monday.
Cole	Quarterly. Second Thursday of Jan., Apr., July, Oct.
Crawford	
Current River	Quarterly. August, November, February, May.
Daviess	
Grundy	Quarterly. July, October, January, April.
Henry	Monthly. Second Tuesday.
Holt	
Howard	Monthly. Third Tuesday.
Howell	First Thursday of January, March May.
Iron	Monthly.
Jackson	Bi-monthly. Second and Fourth Thursday.
Jasper	Bi-monthly. First and Third Mondays.
Johnson	Quarterly. June, September, December, March.
John T. Hodgen	
Laclede	Bi-annual. First Mondays May and November.
Linn	Quarterly. Tuesday nearest full moon, Jan., Apr., July, October.
Livingston	Monthly. Second Thursday.
McDonald	Monthly. First Wednesday.
McDowell District	Monthly.
Macon	Monthly. On or before full moon, Tuesday, 10 a. m.
Maries	Quarterly. First Thursday of Feb., May, Aug., Nov.
Marion	Monthly. First Friday.
Miller	
Mississippi	Monthly. First Monday.
Moniteau	Quarterly. March, June, September, December.
Monroe	Quarterly. First Tuesday of April, July, October, Jan.
Morgan	Quarterly. First Wed. of March, June, Sept., Dec.
Nodaway	Monthly. Second Tuesday.
Pettis	
Phelps	
Platte	Monthly. First Wednesday.
Putnam	Monthly. First Wednesday.
Randolph	
Ray	Monthly. Third Wednesday.
Reynolds	
Saline	Monthly. Second Tuesday.
St. Clair	Quarterly. Second Tues, of March, June, Sept., Dec.
St. Louis	Weekly. Saturdays.
St. Louis County	Bi-monthly. Second and Fourth Wednesday.
Schuyler	Bi-monthly. July and December.
Scotland	Monthly. Second Tuesday.
Shelby	Quarterly. June, September, December, March.
Stoddard	First Wednesday in March, June, Sept. and Dec.
Sullivan	

It is believed the information in this table is correct to date of going to press. Officers are requested to notify us of any errors or required changes. For further information concerning any Society, address the Secretary.

COUNTY SOCIETIES IN AFFILIATION WITH THE STATE MEDICAL ASSOCIATION.

COUNTY.	PRESIDENT.	ADDRESS OF PRESIDENT.	SECRETARY.	ADDRESS OF SECRETARY.
Atchison	E. E. Richards	Tarkio	A. McMichael	Rockport.
Audrain	C. T. Vernon	Mexico	C. A. Rothwell	Mexico.
Bates	A. E. Lyle	Butler	E. N. Chastain	Rich Hill.
Boone	R. S. Austin	Halsville	J. M. Fisher	Columbia.
Buchanan	W. T. Elam	St. Joseph	Chas. W. Fassett	St. Joseph.
Butler	Chas. F. Greene	Poplar Bluff	J. J. Norwine	Poplar Bluff.
Caldwell	G. W. Goins	Breckenridge	Tinsley Brown	Hamilton.
Callaway	C. H. Christian	New Bloomfield	M. Yates	Fulton.
Camden	G. M. Moore	Linn Creek	G. T. Myers	Macks Creek.
Carroll	W. C. Baird	Bogard	R. F. Cook	Carrollton.
Cass	H. Jerard	Pleasant Hill	J. S. Triplett	Harrisonville.
Chariton	M. B. Austin	Brunswick	C. A. Jennings	Salisbury.
Clark	H. W. Harris	Winchester	A. C. Bridges	Kahoka.
Clay	L. J. Jones	Linden	F. H. Matthews	Liberty.
Cole	R. E. Young	Jefferson City	G. Ettmueller	Jefferson City.
Crawford	W. A. Metcalf	Steelville	A. H. Horn	Steelville.
Current River	J. A. Chilton	VanBuren	Frank Hyde	Eminence.
Daviess	W. N. Keener	Jamesport	M. A. Smith	Gallatin.
Grundy	J. A. Asher	Trenton	W. D. Fulkerson	Trenton.
Henry	J. M. Miller	Montrose	F. M. Douglas	Clinton.
Holt	J. M. Davis	Craig	W. C. Proud	Oregon.
Howard	P. C. Smith	Fayette	C. W. Watts	Fayette.
Howell	J. C. B. Dixon	West Plains	H. C. Shuttee	West Plains.
Iron	W. R. Gay	Ironton	Ira A. Marshall	Ironton.
Jackson	J. W. Kyger	Kansas City	E. L. Chambliss	Kansas City.
Jasper	R. L. Neff	Joplin	J. D. Pifer	Joplin.
Johnson	J. I. Anderson	Warrensburg	E. H. Gilbert	Warrensburg.
John T. Hogden	M. P. Overholser	Harrisonville	H. H. Rhodes	Foster.
Laclede	J. M. Billings	Lebanon	J. A. McComb	Lebanon.
Linn	G. N. Lantz	Brookfield	D. F. Howard	Brookfield.
Livingston	R. Barney	Chillicothe	H. M. Grace	Chillicothe.
McDonald	E. F. Doty	Anderson	M. L. Sellers	Anderson.
McDonald Dist	John D. Selba	Bland	C. A. Wood	Owensville.
Macon	W. E. Webb	Macon	G. B. Rush	Macon.
Maries	O. C. Fritts	Lois	O. N. Schudde	Vienna.
Marion	J. S. Howell	Hannibal	F. Janet Reid	Hannibal.
Miller	J. W. Temple	Eldon	G. D. Walker	Eldon.
Mississippi	A. W. Chapman	Charleston	H. L. Reid	Charleston.
Moniteau	J. B. Stewart	Clarksbury	J. B. Norman	California.
Monroe	G. B. Dysart	Paris	W. B. A. McNutt	Monroe City.
Morgan	J. D. Hubbard	Versailles	J. T. Beale	Versailles.
Nodaway	J. A. Larrabee	Barnard	F. R. Anthony	Maryville.
Pettis	W. C. Overstreet	Sedalia	W. S. Shirk	Sedalia.
Phelps	W. H. Breuer	St. James	S. L. Baysinger	Rolla.
Platte	A. S. Herndon	Camden Point	G. C. Coffey	Platte City.
Putnam	I. F. Noel	Unionville	J. H. Holman	Unionville.
Randolph	J. C. Ridings	Cairo	D. A. Barnhart	Huntsville.
Ray	Jas. W. Smith	Richmond	C. B. Shotwell	Richmond.
Reynolds	J. M. Lowery	Centerville	T. W. Chilton	Corridon.
Saline	D. C. Gore	Marshall	D. F. Bell	Marshall.
St. Clair	W. Cline	Appleton City	E. D. Miles	Osceola.
St. Louis	B. M. Hypes	2005 Victor St	T. A. Hopkins	Century Bldg.
St. Louis Co	R. D. Moore	Central	H. G. Wyer	Kirkwood.
Schuyler	J. T. Jones	Queen City	H. E. Gerwig	Downing.
Scotland	W. E. Alexander	Memphis	O. F. Pile	Memphis.
Shelby	Wm. Carson	Shelbyville	L. W. Dallas	Hunnewell.
Stoddard	T. B. Turnbaugh	Bloomfield	R. D. Corbin	Bloomfield.
Sullivan	J. C. Kissinger	Milan	G. S. Milnes	Milan.

OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION, 1904–1905.

General Officers.

President: JOHN H. MUSSER, Philadelphia, Pa.
President-Elect: LEWIS S. McMURTRY, Louisville, Ky.
First Vice-President: EDWARD JACKSON, Denver, Colo.
Second Vice-President: JAMES HALL BELL, San Antonio, Texas.
Third Vice-President: F. C. SHATTUCK, Boston, Mass.
Fourth Vice-President: B. C. PENNINGTON, Atlantic City, N. J.
General Secretary and Editor: GEORGE H. SIMMONS, 103 Dearborn Avenue, Chicago
Treasurer: FRANK BILLINGS, Chicago.

Next Annual Session—Portland, Oregon, June, 1905.

OFFICERS MISSOURI STATE MEDICAL ASSOCIATION.

President: JABEZ N. JACKSON, Kansas City, Mo.
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Assistant Secretary: E. J. GOODWIN, St. Louis.
Treasurer: J. FRANKLIN WELSH, Salisbury.

COUNCILLOR DISTRICTS.

First District.—F. B. HILLER, Kahoka. Counties: Clark, Scotland, Schuyler, *Adair*, *Knox*, *Lewis*.
Second District.—J. B. BRUMMALL, Salisbury. Counties: Linn, Carroll, Chariton, Livingston, Grundy, Sullivan, *Mercer*, Putnam.
Third District.—E. H. MILLER, Fayetteville. Counties: Clay, Ray, Platte, *Clinton*, Caldwell, *DeKalb*, *Gentry*, *Harrison*, *Worth*, Davies.
Fourth District.—C. H. WALLACE, St. Joseph. Counties: Buchanan, Holt, Atchison, Nodaway, *Andrew*.
Fifth District.—L. W. DALLAS, Hunnewell Counties: Macon, Shelby, Marion, Randolph, Monroe, *Ralls*.
Sixth District.—WOODSON MOSS, Columbia. Counties: Audrain, Callaway, *Montgomery*, *Warren*, *Pike*, Boone, Howard.
Seventh District.—W. B. DORSETT, St. Louis. Counties: *St. Charles*, St. Louis, *Lincoln*.
Eighth District.—F. J. LUTZ, St. Louis. Counties: *Franklin*, *Gasconade*, *Crawford*.
Ninth District.—B. M. HYPES, St. Louis. Counties: *St. Genevieve*, *Cape Girardeau*, *Perry*.
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Eleventh District.—W. S. ALLEE, Olean. Counties: Miller, Morgan, Maries, Cole, Moniteau, Camden, *Osage*.
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Thirteenth District.—M. P. OVERHOLSER, Harrisonville. Counties: Jackson, Cass, Bates.
Fourteenth District.—A. R. SNYDER, Joplin. Counties: McDonald, *Berry*, *Newton*, Jasper, *Lawrence*, *Dade*, *Barton*, *Cedar*, *Vernon*
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Sixteenth District—Dr. R. L. JOHNSON, Rolla. Counties: Phelps, *Pulaski*, Laclede, *Webster*, *Ozark*, *Dent*, *Texas*, *Wright*, *Douglas*, Howell, *Oregon*.

Counties in italics not yet organized.